STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 112711

TO: Dwayne C Jones **Location: ~~CM1-2D01~~ Rem E4A71** **Art Unit: 1614** **Monday, February 02, 2004** **Case Serial Number: 09/700142**	**From: Barb O'Bryen** **Location: Biotech-Chem Library** **Remsen E01A69** **Phone: 571-272-2518** **barbara.obryen@uspto.gov**

Search Notes

Note: Examiner moves to Remsen 2-4-04
Rem E4A71

WO 97/07833

2 of 55

11 of 55 (163)

6,64~~4~~,213 differ only

6,5~~9~~6,279 "

6,1~~8~~4,231 "

6,1~~2~~9,156 "

5,9~~5~~9,323

4→5,65~~3~~,582

Search and Information Resources Administration

```
=> fil reg; d ide
FILE 'REGISTRY' ENTERED AT 16:05:43 ON 02 FEB 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    1 FEB 2004  HIGHEST RN 644944-93-4
DICTIONARY FILE UPDATES:   1 FEB 2004  HIGHEST RN 644944-93-4

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html



L5   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN   9004-61-9 REGISTRY
CN   Hyaluronic acid (8CI, 9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   ACP
CN   ACP (polysaccharide)
CN   ACP gel
CN   Durolane
CN   Genzyme 9983
CN   HA 9
CN   Hy 20
CN   Hyalofill
CN   Hyaluronan
CN   Hylan G-F 20
CN   Hylartil
CN   Luronit
CN   Mucoitin
CN   Sepracoat
CN   Sofast
CN   Synvisc
DR   165324-65-2, 9039-38-7, 37243-73-5, 29382-75-0
MF   Unspecified
CI   PMS, COM, MAN
PCT  Manual registration, Polyester, Polyester formed
LC   STN Files:   ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS,
       BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN,
       CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DIOGENES, DRUGU, EMBASE, IFICDB,
       IFIPAT, IFIUDB, IMSCOSEARCH, IMSDRUGNEWS, IMSRESEARCH, IPA, MEDLINE,
       MRCK*, NAPRALERT, NIOSHTIC, PHAR, PIRA, PROMT, TOXCENTER, USAN, USPAT2,
       USPATFULL
         (*File contains numerically searchable property data)
     Other Sources:   DSL**, EINECS**, TSCA**
         (**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
          10636 REFERENCES IN FILE CA (1907 TO DATE)
            791 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
```

10656 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d ide l30

L30 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 100-51-6 REGISTRY
CN Benzenemethanol (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Benzyl alcohol (8CI)**
OTHER NAMES:
CN (Hydroxymethyl)benzene
CN .alpha.-Hydroxytoluene
CN .alpha.-Toluenol
CN Benzenecarbinol
CN Benzylic alcohol
CN NSC 8044
CN Phenylcarbinol
CN Phenylmethanol
CN Phenylmethyl alcohol
CN Sunmorl BK 20
FS 3D CONCORD
DR 1336-27-2, 185532-71-2
MF C7 H8 O
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)

HO—CH_2—Ph

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

19967 REFERENCES IN FILE CA (1907 TO DATE)
406 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
20021 REFERENCES IN FILE CAPLUS (1907 TO DATE)
7 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d que l32
L6 304 SEA FILE=REGISTRY ABB=ON 9004-61-9/CRN
L31 745 SEA FILE=REGISTRY ABB=ON 100-51-6/CRN
L32 27 SEA FILE=REGISTRY ABB=ON L6 AND L31

hyaluronic acid + benzyl alcohol as components in same record

```
=> fil capl
FILE 'CAPLUS' ENTERED AT 17:10:50 ON 02 FEB 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 2 Feb 2004  VOL 140 ISS 6
FILE LAST UPDATED: 1 Feb 2004  (20040201/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE

=> d que l3

L1            19 SEA FILE=CAPLUS ABB=ON  PAVESIO A?/AU
L2           152 SEA FILE=CAPLUS ABB=ON  CALLEGARO L?/AU
L3             6 SEA FILE=CAPLUS ABB=ON  L1 AND L2

=> d ibib ab l3 1-6

L3   ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         2002:695832  CAPLUS
DOCUMENT NUMBER:          137:222118
TITLE:                    Grafts for the repair of osteochondral defects
INVENTOR(S):              Pavesio, Alessandra; Callegaro,
                          Landranco
PATENT ASSIGNEE(S):       Fidia Advanced Biopolymers S.r.l., Italy
SOURCE:                   PCT Int. Appl., 22 pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.        KIND  DATE          APPLICATION NO.   DATE
     ---------------   ----  --------      ---------------   --------
     WO 2002070030      A1   20020912      WO 2002-EP1224    20020206
     WO 2002070030      C1   20021205
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
             UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
             TJ, TM
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
             CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
```

BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
EP 1357953 A1 20031105 EP 2002-726105 20020206
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
PRIORITY APPLN. INFO.: IT 2001-PD32 A 20010209
WO 2002-EP1224 W 20020206

AB The invention concerns the prepn. and use of a biocompatible, biocomponent material constituted by: (a) a three-dimensional matrix of hyaluronic acid derivs. with a structure contg. empty spaces; (b) a porous, three-dimensional matrix constituted by a ceramic material; (c) possibly contg. pharmacol. or biol. active ingredients. Cultured mesenchymal stem cells exposed to .beta.1-transforming growth factors were loaded into a sponge made of a hyaluronan deriv. (Hyaff-11) for the construction of the cartilage component of the composite graft. Mesenchymal stem cells exposed to osteogenic supplement were loaded into a porous calcium phosphate ceramic component for bone formation. Cell-loaded Hyaff-11 sponge and ceramic were assembled and joined together with fibrin glue to form a composite osterochondral graft. Said graft was incubated at 37.degree. for 30 min and then grafted s.c. into the backs of syngeneic rats and the animals were sacrificed 6 wk later. After six weeks, well-organized fibrocartilage was distributed through the material that is partially absorbed. The sep. formation of cartilage and bone could be seen in the two material. Neither the bone tissue nor the cartilage crosses the tidemark between the two materials. At the same time, the two materials formed a structurally integrated composite material thanks to the presence of fibrous tissue and collagen fibers that do cross tidemark.
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:624504 CAPLUS
DOCUMENT NUMBER: 137:129932
TITLE: Injectable biocompatible and biodegradable compositions containing a hyaluronic acid derivative and chondrogenic cells for treatment of cartilaginous defects
INVENTOR(S): Radice, Marco; Pastorello, Andrea; **Pavesio, Alessandra; Callegaro, Lanfranco**
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.l., Italy
SOURCE: Ital., 17 pp.
CODEN: ITXXBY
DOCUMENT TYPE: Patent
LANGUAGE: Italian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
IT 1302534	B1	20000905	IT 1998-PD298	19981221
WO 2000037124	A1	20000629	WO 1999-IB2077	19991221

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

JP 2002532568	T2	20021002	JP 2000-589234	19991221
US 2002076810	A1	20020620	US 2001-887757	20010621

PRIORITY APPLN. INFO.: IT 1998-PD298 A 19981221
WO 1999-IB2077 W 19991221

AB Injectable compns. are disclosed which are biocompatible and biodegradable and comprise at least one hyaluronic acid deriv. as well as chondrogenic cells plus pharmacol. active substances for repair of articular cartilage defects.

L3 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:300558 CAPLUS
DOCUMENT NUMBER: 134:300839
TITLE: Formulations of hyaluronic acid for delivery of osteogenic proteins
INVENTOR(S): Kim, Hyun; Li, Rebecca; **Pavesio, Alessandra**; **Callegaro, Lanfranco**
PATENT ASSIGNEE(S): Genetics Institute, Inc., USA; Fidia Advanced Biology
SOURCE: PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001028602	A1	20010426	WO 2000-US28468	20001013
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1223990	A1	20020724	EP 2000-970914	20001013
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
JP 2003512341	T2	20030402	JP 2001-531430	20001013

PRIORITY APPLN. INFO.:
US 1999-159674P P 19991015
US 2000-185587P P 20000228
WO 2000-US28468 W 20001013

AB An injectable formulation is disclosed for delivery of osteogenic proteins. The formulation comprises a pharmaceutically acceptable admixt. of an osteogenic protein; and formulations comprising osteogenic protein, hyaluronic acid derivs. and tricalcium phosphate are also disclosed. Methods for formulating porous injectable gels and pastes from hyaluronic acid are also disclosed. Hyaff-11p80 was solubilized in N-methylpyrrolidinone, then mixed with RhBMP-2-contg. buffer (0.1 mg/mL) followed by addn. of various pore formers (like sodium bicarbonate) and tricalcium phosphate. In vitro release kinetics of the rhBMP-2 was studied.
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:763921 CAPLUS
DOCUMENT NUMBER: 132:6391
TITLE: Biomaterials containing hyaluronic acid derivatives in the form of three-dimensional structures free from cellular components or products thereof, for the in vivo regeneration of tissue cells
INVENTOR(S): **Pavesio, Alessandra**; Dona', Massimo; **Callegaro, Lanfranco**
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.L., Italy
SOURCE: PCT Int. Appl., 37 pp.

CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9961080	A1	19991202	WO 1999-EP3604	19990525
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
IT 1302535	B1	20000905	IT 1998-PD299	19981221
CA 2332532	AA	19991202	CA 1999-2332532	19990525
AU 9943680	A1	19991213	AU 1999-43680	19990525
AU 748303	B2	20020530		
EP 1085917	A1	20010328	EP 1999-926410	19990525
EP 1085917	B1	20021113		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI				
JP 2002516154	T2	20020604	JP 2000-550539	19990525
AT 227589	E	20021115	AT 1999-926410	19990525
ES 2184460	T3	20030401	ES 1999-926410	19990525

PRIORITY APPLN. INFO.: IT 1998-PD131 A 19980527
IT 1998-PD299 A 19981221
WO 1999-EP3604 W 19990525

AB Use of biocompatible biomaterials contg. hyaluronic acid derivs., with three-dimensional structures enclosing hollow spaces created by communicating pores and/or entangled fine, fibers or microfibres, free from cellular components or products thereof for the in vivo regeneration of tissue cells is disclosed. The tissue obtained by this regeneration, has the same structure, functions as the corresponding natural tissue and is well integrated in the adjacent tissue cells. Benzyl ester of hyaluronic acid (65% esterification) was implanted in bones of rats paws. After 24 days the ester induced a greater degree of bone regeneration than the total benzyl ester or hyaluronic acid in powder form.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:325821 CAPLUS
DOCUMENT NUMBER: 130:343033
TITLE: Ester derivatives of hyaluronic acid with viscoelastic properties and their use in the biomedical and health care field
INVENTOR(S): Renier, Davide; **Pavesio, Alessandra; Callegaro, Lanfranco**
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers, S.r.L., Italy
SOURCE: PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 9924070 A2 19990520 WO 1998-EP7020 19981105
WO 9924070 A3 19990715
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
AU 9915598 A1 19990531 AU 1999-15598 19981105
PRIORITY APPLN. INFO.: IT 1997-PD253 19971106
WO 1998-EP7020 19981105

AB Viscoelastic compns. are described comprised of esters of hyaluronic acid which are uniquely advantageous because their viscoelastic characteristics may vary according to shearing stress and temp. Pr, Bu, benzyl, and octyl esters of hyaluronic acid were prepd. from tetrabutylammonium hyaluronate and the appropriate alkyl (or benzyl) bromide.

L3 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:265578 CAPLUS
DOCUMENT NUMBER: 126:255537
TITLE: Biomaterials for preventing post-surgical adhesions comprised of hyaluronic acid derivatives
INVENTOR(S): Pressato, Daniele; **Pavesio, Alessandra; Callegaro, Lanfranco**
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers, S.R.L., Italy; Pressato, Daniele; Pavesio, Alessandra; Callegaro, Lanfranco
SOURCE: PCT Int. Appl., 65 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9707833	A2	19970306	WO 1996-EP3805	19960829
WO 9707833	A3	19970410		
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM				
CA 2230530	AA	19970306	CA 1996-2230530	19960829
AU 9669300	A1	19970319	AU 1996-69300	19960829
AU 718484	B2	20000413		
EP 850074	A2	19980701	EP 1996-930132	19960829
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI				
CN 1199343	A	19981118	CN 1996-197522	19960829
BR 9610996	A	19990713	BR 1996-10996	19960829
JP 11511344	T2	19991005	JP 1996-509858	19960829
RU 2177332	C2	20011227	RU 1998-105612	19960829
NO 9800888	A	19980427	NO 1998-888	19980227

PRIORITY APPLN. INFO.: IT 1995-PD166 A 19950829
IT 1995-PD167 A 19950829
WO 1996-EP3805 W 19960829

AB New biomaterials essentially constituted by esterified derivs. of hyaluronic acid or by crosslinked derivs. of hyaluronic acid for use in the surgical sector, particularly for use in the prevention of

post-surgical adhesions, are provided. A soln. of hyaluronic acid benzyl ester in DMSO at 135 mg/mL was prepd. and fed into a spinneret for wet extrusion and the extruded mass of threads was passed into a coagulation bath contg. abs. ethanol. The hank of threads was blown dry and cut into 40 mm fibers, which were made into a web. The web was then sprayed with a soln. of hyaluronic acid benzyl ester in DMSO at 80 mg/mL, placed in an ethanol coagulation bath, in a rinsing chamber, and lastly in a drying chamber, to give a nonwoven fabric with a thickness of 0 5 mm.

```
=> fil capl; d que 137; d que 139; d que 141; d que 142; d que 145; d que 148; d que 178

FILE 'CAPLUS' ENTERED AT 17:10:53 ON 02 FEB 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)
```



```
FILE COVERS 1907 - 2 Feb 2004  VOL 140 ISS 6
FILE LAST UPDATED: 1 Feb 2004  (20040201/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.

'OBI' IS DEFAULT SEARCH FIELD FOR 'CAPLUS' FILE


L6          304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L31         745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32          27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L33         139 SEA FILE=CAPLUS ABB=ON  L32
L36       87410 SEA FILE=CAPLUS ABB=ON  VIVO/OBI
L37           2 SEA FILE=CAPLUS ABB=ON  L33 AND L36


L5            1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6          304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L7          130 SEA FILE=REGISTRY ABB=ON  L6 AND ESTER
L8           82 SEA FILE=CAPLUS ABB=ON  L5/D(L)ESTER?/OBI
L9          271 SEA FILE=CAPLUS ABB=ON  L7
L36       87410 SEA FILE=CAPLUS ABB=ON  VIVO/OBI
L38          74 SEA FILE=CAPLUS ABB=ON  (L8 OR L9)(L)BENZYL?/OBI
L39           1 SEA FILE=CAPLUS ABB=ON  L38 AND L36


L5            1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6          304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L7          130 SEA FILE=REGISTRY ABB=ON  L6 AND ESTER
L8           82 SEA FILE=CAPLUS ABB=ON  L5/D(L)ESTER?/OBI
L9          271 SEA FILE=CAPLUS ABB=ON  L7
L13       27180 SEA FILE=CAPLUS ABB=ON  PROSTHETIC#/CW
L38          74 SEA FILE=CAPLUS ABB=ON  (L8 OR L9)(L)BENZYL?/OBI
L40           2 SEA FILE=CAPLUS ABB=ON  L38(L)TEM/RL - Role - Technical or Engineered Material
L41           1 SEA FILE=CAPLUS ABB=ON  L40 AND L13


L5            1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6          304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L7          130 SEA FILE=REGISTRY ABB=ON  L6 AND ESTER
```

```
L8          82 SEA FILE=CAPLUS ABB=ON  L5/D(L)ESTER?/OBI
L9         271 SEA FILE=CAPLUS ABB=ON  L7
L15       8660 SEA FILE=CAPLUS ABB=ON  NONWOVEN FABRICS/CT
L17      25716 SEA FILE=CAPLUS ABB=ON  HOLLOW/OBI
L18      47729 SEA FILE=CAPLUS ABB=ON  PORE#/OBI
L19        163 SEA FILE=CAPLUS ABB=ON  (TANGL?/OBI OR ENTANGL?/OBI)(L)(FIBER#/
            OBI OR FIBRE#/OBI OR MICROFIBRE#/OBI OR MICROFIBER#/OBI)
L31        745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32         27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L33        139 SEA FILE=CAPLUS ABB=ON  L32
L38         74 SEA FILE=CAPLUS ABB=ON  (L8 OR L9)(L)BENZYL?/OBI
L42          6 SEA FILE=CAPLUS ABB=ON  (L38 OR L33) AND (L15 OR (L17 OR L18
            OR L19))
```

```
L5           1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6         304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L7         130 SEA FILE=REGISTRY ABB=ON  L6 AND ESTER
L8          82 SEA FILE=CAPLUS ABB=ON  L5/D(L)ESTER?/OBI
L9         271 SEA FILE=CAPLUS ABB=ON  L7
L12      24074 SEA FILE=CAPLUS ABB=ON  MEDICAL GOODS/CT
L13      27180 SEA FILE=CAPLUS ABB=ON  PROSTHETIC#/CW
L16      49502 SEA FILE=CAPLUS ABB=ON  3D/OBI OR (3/OBI OR THREE/OBI)(W)(DIMEN
            SION?/OBI OR D/OBI)
L31        745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32         27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L33        139 SEA FILE=CAPLUS ABB=ON  L32
L38         74 SEA FILE=CAPLUS ABB=ON  (L8 OR L9)(L)BENZYL?/OBI
L44          6 SEA FILE=CAPLUS ABB=ON  (L12 OR L13) AND (L38 OR L33) AND L16
L45          5 SEA FILE=CAPLUS ABB=ON  L44 NOT SUPERCRITICAL/TI
```

```
L5           1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6         304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L7         130 SEA FILE=REGISTRY ABB=ON  L6 AND ESTER
L8          82 SEA FILE=CAPLUS ABB=ON  L5/D(L)ESTER?/OBI
L9         271 SEA FILE=CAPLUS ABB=ON  L7
L12      24074 SEA FILE=CAPLUS ABB=ON  MEDICAL GOODS/CT
L13      27180 SEA FILE=CAPLUS ABB=ON  PROSTHETIC#/CW
L20       4852 SEA FILE=CAPLUS ABB=ON  BIOLOGICAL MATERIALS/CT
L21      20760 SEA FILE=CAPLUS ABB=ON  MEMBRANES, NONBIOLOGICAL/CT
L31        745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32         27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L33        139 SEA FILE=CAPLUS ABB=ON  L32
L38         74 SEA FILE=CAPLUS ABB=ON  (L8 OR L9)(L)BENZYL?/OBI
L48          4 SEA FILE=CAPLUS ABB=ON  (L12 OR L13 OR PHARMAC?/SC,SX) AND
            ((L20 OR L21)) AND (L38 OR L33)
```

```
L5           1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6         304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L7         130 SEA FILE=REGISTRY ABB=ON  L6 AND ESTER
L8          82 SEA FILE=CAPLUS ABB=ON  L5/D(L)ESTER?/OBI
L9         271 SEA FILE=CAPLUS ABB=ON  L7
L31        745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32         27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L33        139 SEA FILE=CAPLUS ABB=ON  L32
L38         74 SEA FILE=CAPLUS ABB=ON  (L8 OR L9)(L)BENZYL?/OBI
L66    1130190 SEA FILE=CAPLUS ABB=ON  (POLYMER#/OBI OR BIOPOLYMER#/OBI)
L75      14318 SEA FILE=CAPLUS ABB=ON  (SEMISYNTHETIC/OBI OR SYNTHETIC/OBI OR
```

```
                NATURAL/OBI)(2A)L66
L77         10380 SEA FILE=CAPLUS ABB=ON  BIOPOLYMER#/OBI
L78             6 SEA FILE=CAPLUS ABB=ON  (L75 OR L77) AND (L38 OR L33)

=> s (l37 or l39 or l41 or l42 or l45 or l48 or l78) not l3

L121           21 (L37 OR L39 OR L41 OR L42 OR L45 OR L48 OR L78) NOT L3

=> fil uspatf; d que l62; d que l63; d que l65

FILE 'USPATFULL' ENTERED AT 17:10:54 ON 02 FEB 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 29 Jan 2004 (20040129/PD)
FILE LAST UPDATED: 29 Jan 2004 (20040129/ED)
HIGHEST GRANTED PATENT NUMBER: US6684403
HIGHEST APPLICATION PUBLICATION NUMBER: US2004019947
CA INDEXING IS CURRENT THROUGH 29 Jan 2004 (20040129/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 29 Jan 2004 (20040129/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2003
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2003

>>>  USPAT2 is now available.  USPATFULL contains full text of the     <<<
>>>  original, i.e., the earliest published granted patents or         <<<
>>>  applications.  USPAT2 contains full text of the latest US         <<<
>>>  publications, starting in 2001, for the inventions covered in     <<<
>>>  USPATFULL.  A USPATFULL record contains not only the original     <<<
>>>  published document but also a list of any subsequent              <<<
>>>  publications.  The publication number, patent kind code, and      <<<
>>>  publication date for all the US publications for an invention     <<<
>>>  are displayed in the PI (Patent Information) field of USPATFULL   <<<
>>>  records and may be searched in standard search fields, e.g., /PN, <<<
>>>  /PK, etc.                                                         <<<

>>>  USPATFULL and USPAT2 can be accessed and searched together        <<<
>>>  through the new cluster USPATALL.  Type FILE USPATALL to          <<<
>>>  enter this cluster.                                               <<<
>>>                                                                    <<<
>>>  Use USPATALL when searching terms such as patent assignees,       <<<
>>>  classifications, or claims, that may potentially change from      <<<
>>>  the earliest to the latest publication.                           <<<

This file contains CAS Registry Numbers for easy and accurate
substance identification.

L5              1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6            304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L31           745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32            27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L49            31 SEA FILE=USPATFULL ABB=ON  L32 OR L5(L)ESTER?/IT(L)BENZYL?/IT
L52         12780 SEA FILE=USPATFULL ABB=ON  VIVO/IT,TI,CLM,AB
L62             1 SEA FILE=USPATFULL ABB=ON  L49 AND L52


L5              1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6            304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L31           745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32            27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L49            31 SEA FILE=USPATFULL ABB=ON  L32 OR L5(L)ESTER?/IT(L)BENZYL?/IT
L51         16149 SEA FILE=USPATFULL ABB=ON  (NONWOVEN OR NON WOVEN)/IT,TI,CLM,AB
```

printed w/ Inventor search

```
L53        7083 SEA FILE=USPATFULL ABB=ON  MEDICAL GOODS/CT
L54       11852 SEA FILE=USPATFULL ABB=ON  PROSTHE?/IT,TI,CLM,AB
L55       39334 SEA FILE=USPATFULL ABB=ON  (3D OR (3 OR THREE)(W)(DIMENSION?
                OR D))/IT,TI,CLM,AB
L56      188362 SEA FILE=USPATFULL ABB=ON  (HOLLOW OR PORE#)/IT,TI,CLM,AB
L57         819 SEA FILE=USPATFULL ABB=ON  ((TANGL? OR ENTANGL?)(3A)(FIBRE# OR
                FIBER# OR MICROFIBER# OR MICRO FIBER#))/IT,TI,CLM,AB
L58         808 SEA FILE=USPATFULL ABB=ON  BIOLOGICAL MATERIALS/CT
L59        2799 SEA FILE=USPATFULL ABB=ON  MEMBRANES, NONBIOLOGICAL/CT
L63           8 SEA FILE=USPATFULL ABB=ON  L49 AND L51 AND (L53 OR L54 OR L55
                OR L56 OR L57 OR L58 OR L59)


L5            1 SEA FILE=REGISTRY ABB=ON  "HYALURONIC ACID"/CN
L6          304 SEA FILE=REGISTRY ABB=ON  9004-61-9/CRN
L31         745 SEA FILE=REGISTRY ABB=ON  100-51-6/CRN
L32          27 SEA FILE=REGISTRY ABB=ON  L6 AND L31
L49          31 SEA FILE=USPATFULL ABB=ON  L32 OR L5(L)ESTER?/IT(L)BENZYL?/IT
L53        7083 SEA FILE=USPATFULL ABB=ON  MEDICAL GOODS/CT
L54       11852 SEA FILE=USPATFULL ABB=ON  PROSTHE?/IT,TI,CLM,AB
L58         808 SEA FILE=USPATFULL ABB=ON  BIOLOGICAL MATERIALS/CT
L64      211671 SEA FILE=USPATFULL ABB=ON  (POLYMER# OR BIOPOLYMER#)/IT,TI,AB,C
                LM
L65           6 SEA FILE=USPATFULL ABB=ON  L49 AND L64 AND (L53 OR L54 OR L58)


=> s l62 or l63 or l65

L122         10 L62 OR L63 OR L65

=> fil medl; d que 190; d que 192

FILE 'MEDLINE' ENTERED AT 17:10:55 ON 02 FEB 2004

 FILE LAST UPDATED: 31 JAN 2004 (20040131/UP).  FILE COVERS 1958 TO DATE.

 On December 14, 2003, the 2004 MeSH terms were loaded.  See HELP RLOAD
 for details.

 MEDLINE thesauri in the /CN, /CT, and /MN fields incorporate the
 MeSH 2004 vocabulary.  See http://www.nlm.nih.gov/mesh/ and
 http:\\www.nih.gov/pubs/yechbull/nd03/nd03_mesh.html for a description
 on changes.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


L81        7609 SEA FILE=MEDLINE ABB=ON  HYALURONIC ACID/CT
L83        1689 SEA FILE=MEDLINE ABB=ON  ESTERIFICATION/CT
L86        8983 SEA FILE=MEDLINE ABB=ON  ESTERS/CT
L87       17883 SEA FILE=MEDLINE ABB=ON  BIOCOMPATIBLE MATERIALS/CT
L90           5 SEA FILE=MEDLINE ABB=ON  L81 AND (L83 OR L86) AND L87


L81        7609 SEA FILE=MEDLINE ABB=ON  HYALURONIC ACID/CT
L83        1689 SEA FILE=MEDLINE ABB=ON  ESTERIFICATION/CT
L86        8983 SEA FILE=MEDLINE ABB=ON  ESTERS/CT
L88          13 SEA FILE=MEDLINE ABB=ON  L81 AND (L83 OR L86)
```

```
L91        33197 SEA FILE=MEDLINE ABB=ON  ?BENZYL? OR PHENYLMETHYL OR PHENYL
                 METHYL
L92            4 SEA FILE=MEDLINE ABB=ON  L88 AND L91


=> s l90 or l92

L123           6 L90 OR L92

=> fil embase; d que l94; d que l104; d que l105

FILE 'EMBASE' ENTERED AT 17:10:56 ON 02 FEB 2004
COPYRIGHT (C) 2004 Elsevier Inc. All rights reserved.

 FILE COVERS 1974 TO 29 Jan 2004 (20040129/ED)

 EMBASE has been reloaded. Enter HELP RLOAD for details.

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


L94            4 SEA FILE=EMBASE ABB=ON  HYALURONIC ACID BENZYL ESTER/CT


L93         8247 SEA FILE=EMBASE ABB=ON  HYALURONIC ACID/CT
L95         3226 SEA FILE=EMBASE ABB=ON  ESTER/CT
L96         3826 SEA FILE=EMBASE ABB=ON  ESTERIFICATION/CT
L101         223 SEA FILE=EMBASE ABB=ON  HYALURONIC ACID DERIVATIVE/CT
L102        2128 SEA FILE=EMBASE ABB=ON  BENZYL ALCOHOL/CT OR BENZYL DERIVATIVE/
                 CT
L104           3 SEA FILE=EMBASE ABB=ON  (L93 OR L101) AND (L95 OR L96) AND
                 L102


=> d que l105
L93         8247 SEA FILE=EMBASE ABB=ON  HYALURONIC ACID/CT
L95         3226 SEA FILE=EMBASE ABB=ON  ESTER/CT
L96         3826 SEA FILE=EMBASE ABB=ON  ESTERIFICATION/CT
L98        51507 SEA FILE=EMBASE ABB=ON  ?BENZYL? OR PHENYLMETHYL OR PHENYL
                 METHYL
L101         223 SEA FILE=EMBASE ABB=ON  HYALURONIC ACID DERIVATIVE/CT
L103        6180 SEA FILE=EMBASE ABB=ON  BIOMATERIAL/CT
L105           5 SEA FILE=EMBASE ABB=ON  (L93 OR L101) AND (L95 OR L96) AND L98
                 AND L103


=> s l94 or l104 or l105

L124          11 L94 OR L104 OR L105

=> fil DRUGU, PASCAL, BIOTECHNO, BIOSIS, TOXCENTER, SCISEARCH

FILE 'DRUGU' ENTERED AT 17:10:58 ON 02 FEB 2004
COPYRIGHT (C) 2004 THOMSON DERWENT

FILE 'PASCAL' ENTERED AT 17:10:58 ON 02 FEB 2004
Any reproduction or dissemination in part or in full,
by means of any process and on any support whatsoever
is prohibited without the prior written agreement of INIST-CNRS.
COPYRIGHT (C) 2004 INIST-CNRS. All rights reserved.
```

```
FILE 'BIOTECHNO' ENTERED AT 17:10:58 ON 02 FEB 2004
COPYRIGHT (C) 2004 Elsevier Science B.V., Amsterdam. All rights reserved.

FILE 'BIOSIS' ENTERED AT 17:10:58 ON 02 FEB 2004
COPYRIGHT (C) 2004 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'TOXCENTER' ENTERED AT 17:10:58 ON 02 FEB 2004
COPYRIGHT (C) 2004 ACS

FILE 'SCISEARCH' ENTERED AT 17:10:58 ON 02 FEB 2004
COPYRIGHT 2004 THOMSON ISI

=> d que l119; d que l120

L107      43603 SEA HYALURON?
L108     831980 SEA ESTER?
L109     249813 SEA ?BENZYL? OR PHENYLMETHYL OR PHENYL METHYL
L110        143 SEA L107(5A) L108(8A) L109
L111       4455 SEA NONWOVEN OR NON WOVEN
L118         17 SEA L110 AND L111
L119         11 DUP REM L118 (6 DUPLICATES REMOVED)


L107      43603 SEA HYALURON?
L108     831980 SEA ESTER?
L109     249813 SEA ?BENZYL? OR PHENYLMETHYL OR PHENYL METHYL
L110        143 SEA L107(5A) L108(8A) L109
L112        247 SEA ((TANGL? OR ENTANGL?)(3A)(FIBRE# OR FIBER# OR MICROFIBER#
                OR MICRO FIBER#))
L113      44520 SEA HOLLOW
L114     174431 SEA PORE#
L120          5 SEA L110 AND (L112 OR L113 OR L114)


=> s l119 or l120
L125         16 L119 OR L120

=> dup rem l123,l121,l124,l125,l122
FILE 'MEDLINE' ENTERED AT 17:13:02 ON 02 FEB 2004

FILE 'CAPLUS' ENTERED AT 17:13:02 ON 02 FEB 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'EMBASE' ENTERED AT 17:13:02 ON 02 FEB 2004
COPYRIGHT (C) 2004 Elsevier Inc. All rights reserved.

FILE 'DRUGU' ENTERED AT 17:13:02 ON 02 FEB 2004
COPYRIGHT (C) 2004 THOMSON DERWENT

FILE 'PASCAL' ENTERED AT 17:13:02 ON 02 FEB 2004
Any reproduction or dissemination in part or in full,
by means of any process and on any support whatsoever
is prohibited without the prior written agreement of INIST-CNRS.
COPYRIGHT (C) 2004 INIST-CNRS. All rights reserved.

FILE 'BIOTECHNO' ENTERED AT 17:13:02 ON 02 FEB 2004
COPYRIGHT (C) 2004 Elsevier Science B.V., Amsterdam. All rights reserved.

FILE 'BIOSIS' ENTERED AT 17:13:02 ON 02 FEB 2004
```

FILE 'TOXCENTER' ENTERED AT 17:13:02 ON 02 FEB 2004

FILE 'SCISEARCH' ENTERED AT 17:13:02 ON 02 FEB 2004

FILE 'USPATFULL' ENTERED AT 17:13:02 ON 02 FEB 2004

PROCESSING COMPLETED FOR L123
PROCESSING COMPLETED FOR L121
PROCESSING COMPLETED FOR L124
PROCESSING COMPLETED FOR L125
PROCESSING COMPLETED FOR L122
L126 55 DUP REM L123 L121 L124 L125 L122 (9 DUPLICATES REMOVED)
ANSWERS '1-6' FROM FILE MEDLINE
ANSWERS '7-27' FROM FILE CAPLUS
ANSWERS '28-36' FROM FILE EMBASE
ANSWER '37' FROM FILE DRUGU
ANSWER '38' FROM FILE PASCAL
ANSWERS '39-40' FROM FILE BIOTECHNO
ANSWERS '41-45' FROM FILE TOXCENTER
ANSWER '46' FROM FILE SCISEARCH
ANSWERS '47-55' FROM FILE USPATFULL

=> d ibib ab 1-6; d ibib ab hitrn 7-27; d ibib ab 28-46; d ibib ab hitrn 47-55; fil hom

L126 ANSWER 1 OF 55 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 1999098521 MEDLINE
DOCUMENT NUMBER: 99098521 PubMed ID: 9884052
TITLE: Semisynthetic resorbable materials from hyaluronan esterification.
AUTHOR: Campoccia D; Doherty P; Radice M; Brun P; Abatangelo G; Williams D F
CORPORATE SOURCE: Fidia Advanced Biopolymers, Albano Terme (PD), Italy.
SOURCE: BIOMATERIALS, (1998 Dec) 19 (23) 2101-27. Ref: 174
Journal code: 8100316. ISSN: 0142-9612.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199904
ENTRY DATE: Entered STN: 19990413
Last Updated on STN: 19990413
Entered Medline: 19990401

AB In recent years, research on new, biocompatible, degradable materials has seen the development of a series of modified natural polymers. Among these, a new class of materials consisting of different hyaluronan derivatives promises to be useful in a whole range of clinical applications thanks to their varied biological properties. These new materials are obtained by chemical modification of purified hyaluronan consisting of the partial or total esterification of the carboxyl groups of this natural polymer. This review on the properties of the new materials reports some of their biocompatibility and characterization aspects based on findings from studies conducted on the ethyl and **benzyl** hyaluronan esters, two representative members of this new class of compounds, and is intended to arouse interest in the potential of other, as yet unexplored derivatives. From the results of a number of investigations, the various derivatives appear to possess different physico-chemical properties, especially as far as the degree of hydration

and polymer stability are concerned. In addition, the type of esterification and extent of chemical esterification of hyaluronan considerably affects the biological properties of these materials, offering a range of polymers either favouring or, conversely, inhibiting the adhesion of certain types of cell.

L126 ANSWER 2 OF 55 MEDLINE on STN DUPLICATE 7
ACCESSION NUMBER: 94339266 MEDLINE
DOCUMENT NUMBER: 94339266 PubMed ID: 8061127
TITLE: Biodegradation of hyaluronic acid derivatives by hyaluronidase.
AUTHOR: Zhong S P; Campoccia D; Doherty P J; Williams R L; Benedetti L; Williams D F
CORPORATE SOURCE: Department of Clinical Engineering, University of Liverpool, UK.
SOURCE: BIOMATERIALS, (1994 Apr) 15 (5) 359-65.
Journal code: 8100316. ISSN: 0142-9612.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199409
ENTRY DATE: Entered STN: 19941005
Last Updated on STN: 19980206
Entered Medline: 19940922

AB Hyaluronic acid (salt) (HA) has been chemically modified as a biomaterial for medical applications such as controlled drug release matrices, nerve guides and wound dressings. A series of HA derivatives, which include different ester types and different degrees of esterification, have been used to investigate the stability of these materials in testicular hyaluronidase. Gel permeation chromatography and capillary viscometer have been employed to determine the size of the molecules, the former used for the water insoluble derivatives that dissolve in dimethyl sulphoxide, the latter for the water soluble samples. The preliminary experimental results indicated that the molecular weight of fully esterified hyaluronic acid (both ethyl and **benzyl** esters) did not decrease after treatment in the enzyme for 7 and 14 days while the water soluble partially esterified HA were degraded by the enzyme producing a sharp reduction of viscosity within minutes. These observations tend to suggest that the carboxylic groups in the beta-glucoronic acid unit are the activation centre of this enzyme and the total blockage of these groups can restrict the cleavage of beta (1-->4) glycoside bonds by this enzyme.

L126 ANSWER 3 OF 55 MEDLINE on STN
ACCESSION NUMBER: 2001293641 MEDLINE
DOCUMENT NUMBER: 21244332 PubMed ID: 11346429
TITLE: Evaluation of esterified hyaluronic acid as middle ear-packing material.
AUTHOR: Li G; Feghali J G; Dinces E; McElveen J; van de Water T R
CORPORATE SOURCE: Department of Otolaryngology, Albert Einstein College of Medicine, Bronx, NY 10461, USA.
SOURCE: ARCHIVES OF OTOLARYNGOLOGY -- HEAD AND NECK SURGERY, (2001 May) 127 (5) 534-9.
Journal code: 8603209. ISSN: 0886-4470.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 200105
ENTRY DATE: Entered STN: 20010604
Last Updated on STN: 20010604
Entered Medline: 20010531

AB OBJECTIVE: To evaluate the efficacy of esterified hyaluronic acid

(MeroGel) as a middle ear (ME)-packing material. DESIGN: Randomized controlled trial. MATERIAL: Twenty-four guinea pigs. INTERVENTION: Group 1, MeroGel-treated animals (n = 10), bilateral wounding of ME mucosa with 5 of the animals receiving the MeroGel packing in the left ME and 5 of the animals receiving MeroGel in the right ME; group 2, absorbable gelatin sponge-treated animals (n = 10), with the same experimental protocol as in group 1 except that the absorbable gelatin sponge was the packing material; group 3, untreated animals (n = 4), unilateral wounding of the left ME mucosa in 2 animals and in 2 animals in the right ME, with no packing material. Auditory brainstem recordings were performed for all groups before the ME operation and 5 days and 6 weeks after the operation. RESULTS: Auditory brainstem response recordings at postoperative day 5 showed that all ears with ME packing had hearing losses in the frequency range of 500 to 4000 Hz. The recovery of hearing acuity at postoperative week 6 was significantly better in group 1 (MeroGel-treated) guinea pigs compared with group 2 (the absorbable gelatin sponge-treated) animals. In group 2 animals, 20% of the packing material remained in the ME cavities and new bone formation was observed, while in group 1 animals, there was less packing material in the ME and no formation of new bone. CONCLUSIONS: MeroGel is a nonototoxic packing material with a high level of biocompatibility for ME mucosa; it is an effective supportive material following ME surgery and is easily expelled from the ME cavity.

L126 ANSWER 4 OF 55 MEDLINE on STN
ACCESSION NUMBER: 96440059 MEDLINE
DOCUMENT NUMBER: 96440059 PubMed ID: 8842370
TITLE: Application of **benzyl** hyaluronate membranes as potential wound dressings: evaluation of water vapour and gas permeabilities.
AUTHOR: Ruiz-Cardona L; Sanzgiri Y D; Benedetti L M; Stella V J; Topp E M
CORPORATE SOURCE: Department of Pharmaceutical Chemistry, University of Kansas, Lawrence 66045, USA.
SOURCE: BIOMATERIALS, (1996 Aug) 17 (16) 1639-43.
Journal code: 8100316. ISSN: 0142-9612.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199612
ENTRY DATE: Entered STN: 19970128
Last Updated on STN: 19970128
Entered Medline: 19961230

AB Membranes of 75% and 100% **benzyl** hyaluronate esters (percentage of total carboxylate groups esterified) were prepared and their water vapour, oxygen and carbon dioxide transmission rates determined. The values of these properties were compared with the values obtained for several commercial wound dressings under the same conditions. The **benzyl** hyaluronate membranes showed water vapour transmission rates (2157-2327 gm-2 per day) comparable to those from commercial skin dressings (426-2047 gm-2 per day). In the dry state, the **benzyl** hyaluronate membranes showed lower oxygen and carbon dioxide transmission rates. Taking into account the biocompatibility of the hyaluronic acid esters, and the possibility that therapeutic agents could be incorporated into these membranes, the results indicate that the **benzyl** hyaluronate membranes have potential wound dressing applications.

L126 ANSWER 5 OF 55 MEDLINE on STN
ACCESSION NUMBER: 92379807 MEDLINE
DOCUMENT NUMBER: 92379807 PubMed ID: 1511449
TITLE: 1H- and 13C-NMR studies of solutions of hyaluronic acid esters and salts in methyl sulfoxide: comparison of hydrogen-bond patterns and conformational behaviour.

AUTHOR: Kvam B J; Atzori M; Toffanin R; Paoletti S; Biviano F
CORPORATE SOURCE: POLY-bios Research Centre, LBT--Area di Ricerca, Trieste, Italy.
SOURCE: CARBOHYDRATE RESEARCH, (1992 Jun 4) 230 (1) 1-13.
Journal code: 0043535. ISSN: 0008-6215.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199210
ENTRY DATE: Entered STN: 19921018
Last Updated on STN: 19921018
Entered Medline: 19921001

AB The 1H- and 13C-NMR spectra of the ethyl and **benzyl** esters and the tetrabutylammonium and tetraethylammonium salts of hyaluronic acid [[symbol: see text]2)-beta-D-GcpA+-1----3)-beta-D-GlcpNAc-(1[symbol: see text]n] in Me2SO-d6 have been assigned using 1D and 2D techniques. The chemical shifts of the resonance of GlcNAc C-3 suggest that the relative orientations of the monosaccharides at the (1----3) linkage in the esters and salts are different. Small differences in the chemical shifts of the resonance GlcA C-4 suggest only a slight conformational variation around the (1----4) linkage. The 13C-NMR data also suggest similarities in conformation between the esters in Me2SO-d6 and the salts in water. The chemical shifts of the 1H resonances for NH and OH groups and their temperature dependence for the esters and salts in Me2SO reveal markedly stronger inter-residue hydrogen bonds between the carboxyl and NH groups and between HO-4 of GlcA and O-5 of GlcNAc for the salts. The 3J2,NH values indicate a slightly different orientation for the acetamido group. For solutions in Me2SO, the higher segmental flexibility of the esters is supported by the line widths, whereas the reduced viscosity for the tetrabutylammonium salt showed a sigmoidal concentration dependence and suggests association of chains which could contribute to the segmental rigidity. The linear concentration dependence for the **benzyl** ester suggests a higher overall flexibility without chain association.

L126 ANSWER 6 OF 55 MEDLINE on STN
ACCESSION NUMBER: 92190407 MEDLINE
DOCUMENT NUMBER: 92190407 PubMed ID: 1799648
TITLE: In vitro studies on biocompatibility of hyaluronic acid esters.
AUTHOR: Cortivo R; Brun P; Rastrelli A; Abatangelo G
CORPORATE SOURCE: Institute of Histology, University of Padova, Italy.
SOURCE: BIOMATERIALS, (1991 Oct) 12 (8) 727-30.
Journal code: 8100316. ISSN: 0142-9612.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199204
ENTRY DATE: Entered STN: 19920509
Last Updated on STN: 19920509
Entered Medline: 19920421

AB The biocompatibility of semisynthetic polymers formed from hyaluronic acid esters has been studied using fibroblast cultures. The polymers, added to the culture medium, used either in powdered form or as thin membranes, behave as inert materials. The cells used in the experiments grow normally in the culture dishes. With regard to adhesiveness the cells were not able to spread on the biomembranes and tended to form isolated clusters of round cells. Human fibronectin, placental collagen (type I-IV) and fibrin could be stratified on biomembranes. When these molecules reacted with the biomaterial the film became suitable for fibroblasts spreading and growth.

L126 ANSWER 7 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2000:724680 CAPLUS
DOCUMENT NUMBER: 134:32921
TITLE: Chemico-physical properties of hyaluronan-based sponges
AUTHOR(S): Milella, E.; Brescia, E.; Massaro, C.; Ramires, P. A.
CORPORATE SOURCE: Biomaterials Unit, PASTIS-CNRSM, Brindisi, Italy
SOURCE: Journal of Biomedical Materials Research (2000), 52(4), 695-700
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The aim of this study was to obtain information on the chemico-phys. and surface properties of the hyaluronan total benzylic ester sponges to evaluate their stability, surface "cleanliness" and handling for the applications in the tissue engineering. The thermal anal., the characterization of surface chem. compn. and the swelling test were performed on these materials. Moreover, the morphol. changes, the rheol. behavior, and the mol. wt. loss in function of the time were monitored when the sponges were incubated in cell culture medium. The results showed that the sponges were thermally stable up to 220.degree.C and the surface compn. was different from that of the bulk for C-O contribution. No contaminants were detected. In culture medium, the samples swelled assuming the rheol. properties of biopolymer gel. When the sponges were in contact with the culture medium, their mol. wt. remained stable for the first day and a loss of 11% and 31% was recorded for samples removed from culture medium after 3 and 7 days, resp. With the SEM anal., the spongy structure appeared with open interconnecting pores. The micrographs related to the samples after incubation in culture medium showed that the degrdn. was evident on the surface after 1 day. The deterioration of the pore walls and the presence of craters increased with time and, after 3 days, the phenomena were present also in the section.
IT **111744-92-4**, HYAFF 11
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(physicochem. properties of hyaluronan-based sponges for biomaterials)
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 8 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:666708 CAPLUS
DOCUMENT NUMBER: 140:43256
TITLE: Hydrophobic/hydrophilic electrospun membranes for biomedical applications
AUTHOR(S): Jiang, H. L.; Fang, D. F.; Hsiao, B.; Chu, B.; Chen, W.
CORPORATE SOURCE: Department of Biomedical Engineering, State University of New York at Stony Brook, NY, 11794-2580, USA
SOURCE: Polymeric Materials Science and Engineering (2003), 89, 350
CODEN: PMSEDG; ISSN: 0743-0515
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
AB Ethylene glycol-chitosan graft copolymer, hyaluronan benzyl ester, dextran, lactide-glycolide copolymer, and their blends are electrospun to obtain porous membrane with uniform nanofibrous structure that can be used for biomedical applications.
IT **111744-92-4**, Hyaluronan **benzyl** ester

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(hydrophobic/hydrophilic electrospun membranes for biomedical applications)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 9 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:9664 CAPLUS
DOCUMENT NUMBER: 138:193161
TITLE: Soft tissue reconstruction in severely traumatized patients using hyaluronan based dermal and epidermal grafts
AUTHOR(S): Hollander, Dirk A.; Kraemer, Susanne; Hakimi, Mohssen Y.; Windolf, Joachim
CORPORATE SOURCE: Department of Trauma and Reconstructive Surgery, Johann Wolfgang Goethe-University, Frankfurt/Main, 60590, Germany
SOURCE: Hyaluronan, [Proceedings of the International Cellucon Conference], 12th, Wrexham, United Kingdom, 2000 (2002), Meeting Date 2000, Volume 2, 87-98. Editor(s): Kennedy, John F. Woodhead Publishing Ltd.: Cambridge, UK.
CODEN: 69DKVZ; ISBN: 1-85573-570-9
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Background: This report demonstrates the potential of two-stage autologous keratodermal grafting as a starting point for non-invasive reconstruction of extensive traumatic soft-tissue defects. Methods: In severely injured patients skin biopsies for cell cultivation were taken. Cultured "neodermis" consisting of cultured autologous fibroblasts grown on biocompatible three-dimensional scaffolds made up of benzylester of hyaluronan was grafted on conditioned defect areas. After ingrowth of dermal substitutes transplantation of cultured autologous keratinocytes on hyaluronan based laser-perforated membranes was performed. 10 Days later a 0.2 mm thin, 1:6 meshed autograft was overlaid. Clin. follow-up with std. photog. was documented. Results: Grafting with cultured autologous fibroblasts revealed a suitable dermal tissue replacement. Epithelialization was evident after transplantation of keratinocytes. Final closure of the defects with normo-elastic tissue properties was achieved after thin mesh-grafting. Conclusions: Preliminary findings with the described method seem to be very promising. As in all fields of tissue engineering, long-term studies and further follow-up are required.
IT **111744-92-4**, Hyalograft **3d**
RL: BSU (Biological study, unclassified); DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(soft tissue reconstruction in severely traumatized patients using hyaluronan based dermal and epidermal grafts)
REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 10 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:9663 CAPLUS
DOCUMENT NUMBER: 138:61259
TITLE: Hyaluronan based dermal and epidermal grafts in the treatment of diabetic foot ulcers
AUTHOR(S): Caravaggi, Carlo; Faglia, Ezio; Dalla Paola, Luca; Clerici, Giacomo; De Giglio, Roberto; Sommariva, Emanuela; Pritelli, Chiara; Mantero, Manuela; Caminiti, Maurizio; Curci, Vincenzo; Fratino, Pietro
CORPORATE SOURCE: Presidio Ospedaliero C. Cantu, Centre for the Study and Treatment of Diabetic Foot Pathology, Abbiategrasso (MI), 20080, Italy

SOURCE: Hyaluronan, [Proceedings of the International Cellucon Conference], 12th, Wrexham, United Kingdom, 2000 (2002), Meeting Date 2000, Volume 2, 79-86. Editor(s): Kennedy, John F. Woodhead Publishing Ltd.: Cambridge, UK.
CODEN: 69DKVZ; ISBN: 1-85573-570-9
DOCUMENT TYPE: Conference
LANGUAGE: English

AB The normal healing process of ulcers is often impaired in diabetic patients, thus, contributing to the pathophysiol. that ultimately leads to amputation. Recently, great interest has been given to the use of tissue engineering for the treatment of such problematic ulcers. This approach involves the in vitro prodn. of tissues obtained by making specific cells proliferate on three-dimensional polymeric scaffolds able to support their growth and the prodn. of components of the extracellular matrix. HYAFF scaffolds have been employed to produce hyaluronan based tissue engineered skin grafts. The dermal component of the skin has been addressed by using a three-dimensional HYAFF fiber mesh scaffold, named Hyalograft 3D, designed to support fibroblast cultures. Epithelialization is achieved by employing autologous keratinocyte grafts delivered on Laserskin, a HYAFF microperforated transparent membrane designed to facilitate graft handling procedures and to enable grafting at preconfluence. The results of uncontrolled and controlled clin. studies involving the use of a two stage dermo-epidermal autologous grafting procedure on diabetic foot ulcers will be reported.

IT **111744-92-4**, Hyalograft **3D**
RL: BSU (Biological study, unclassified); DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hyaluronan based dermal and epidermal grafts in treatment of patients with diabetic foot ulcers)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 11 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:816510 CAPLUS
DOCUMENT NUMBER: 135:348862
TITLE: Biomaterials comprised of preadipocyte cells for soft tissue repair
INVENTOR(S): Von Heimburg, Dennis; Pavesio, Alessandra
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.l., Italy
SOURCE: PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001082991	A2	20011108	WO 2001-EP5087	20010503
W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1280562	A2	20030205	EP 2001-940405	20010503
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003531684	T2	20031028	JP 2001-579862	20010503

PRIORITY APPLN. INFO.: US 2000-201984P P 20000503
WO 2001-EP5087 W 20010503

AB Biomaterials are described comprised of a scaffold support or injectable material comprising a benzyl ester of and/or an amide of hyaluronic acid having adipocytes, mesenchymal stem cells and/or endothelial cells disposed thereon, and which are useful in reconstructive surgery for correction of soft tissue damage.

IT **111744-92-4, Benzyl** hyaluronate
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biomaterials comprised of preadipocyte cells for soft tissue repair)

L126 ANSWER 12 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:400673 CAPLUS
DOCUMENT NUMBER: 135:247157
TITLE: Production of different morphologies of biocompatible polymeric materials by supercritical CO2 antisolvent techniques
AUTHOR(S): Elvassore, Nicola; Baggio, Marco; Pallado, Paolo; Bertucco, Alberto
CORPORATE SOURCE: Department of Chemical Engineering Principles and Equipment, Universita di Padova, Padua, I-35131, Italy
SOURCE: Biotechnology and Bioengineering (2001), 73(6), 449-457
CODEN: BIBIAU; ISSN: 0006-3592
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB High-value biocompatible-polymers have been processed with supercrit. antisolvent techniques to produce solid structures of different shape and size. In particular, a class of hyaluronic acid-derived polymers (Hyaff 11p50, Hyaff 11p80, Hyaff 11p75, Hyaff 302) have been used to obtain various morphologies such as microspheres, threads, fibers; networks, and sponges. The effect of thermodn. variables on pptn. were highlighted in some preliminary batch expts. Then, different products were obtained by tuning the values of operating parameters. Threads and fibers were the result of a continuous supercrit. antisolvent (SAS) process where a concd. polymer soln. was pumped through a micrometric nozzle: The threads showed a reticular internal structure with an adjustable type of cavity. For prodn. of networks and sponges, the concn. of polymer plays the key role. Below a crit. value it was not possible to obtain a continuous network, while above it, a structure similar to that of the natural bone with three types of internal microporosity were obtained. Again, by tuning pressure and polymer concn., the internal porosity could be controlled. Microparticles were also produced by the SAS process, and a control of their morphol. was achieved by varying the concn. of the polymer in the starting soln. and the d. of org. solvent-CO2 mixts. All the products obtained by SAS have negligible content of residual solvent. A qual. interpretation of exptl. results is presented.

IT **111744-92-4,** Hyaff 11p80
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Hyaff 11, Hyaff 11p50, Hyaff 11p80; prodn. of different morphol. of biocompatible polymeric materials by supercrit. CO2 antisolvent techniques)

IT **203874-06-0,** Hyaff 302
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Hyaff 302; prodn. of different morphol. of biocompatible polymeric materials by supercrit. CO2 antisolvent techniques)

IT **149175-67-7,** Hyaff 11p75
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological

study); USES (Uses)
(prodn. of different morphol. of biocompatible polymeric materials by supercrit. CO2 antisolvent techniques)
REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 13 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:315645 CAPLUS
DOCUMENT NUMBER: 137:375128
TITLE: Intravitreal hyaluronan implants: Biocompatibility and biodegradation in **vivo**
AUTHOR(S): Bucolo, C.; Avitabile, T.; Marano, F.; Castiglione, F.; Cro, M.; Ambrosio, L.; Reibaldi, A.
CORPORATE SOURCE: Fidia Oftal., Laboratori di Ricerca, Catania, Italy
SOURCE: Acta Technologiae et Legis Medicamenti (2001), 12(2), 179-183
CODEN: ATLMEQ; ISSN: 1121-2098
PUBLISHER: Maccari Editore
DOCUMENT TYPE: Journal
LANGUAGE: English
AB To study the biocompatibility and the biodegrdn. rate of intravitreal implants made with different hyaluronic acid esters, the plugs were implanted in the rabbit eyes. In order to evaluate the in vivo biodegrdn. the shaft diam. of plugs was measured by ultrasound biomicroscopy. Slit lamp microscopy, ophthalmoscopy and ERG were performed periodically. All the plugs showed a good biocompatibility and the biodegrdn. rate of each implant was related to the chem. structure of the esters. The present data suggest that intravitreal hyaluronan implants represent useful biocompatible and biodegradable devices for a potential drug delivery system in the treatment of posterior segment ocular diseases.
IT **111744-92-4**, Hyaff 11 **149175-67-7**, Hyaff 11p75
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(biocompatibility and biodegrdn. of intravitreal hyaluronan implants)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 14 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:384002 CAPLUS
DOCUMENT NUMBER: 133:34465
TITLE: Porous composite matrix based on hyaluronate and hydrolyzed collagen
INVENTOR(S): Angele, Peter; Kujat, Richard
PATENT ASSIGNEE(S): Nerlich, Michael, Germany
SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000032251	A1	20000608	WO 1999-EP9444	19991203

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,

CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
DE 19855890 A1 20000608 DE 1998-19855890 19981203
EP 1135177 A1 20010926 EP 1999-963373 19991203
EP 1135177 B1 20030604
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO
JP 2002531182 T2 20020924 JP 2000-584940 19991203
AT 242018 E 20030615 AT 1999-963373 19991203
PRIORITY APPLN. INFO.: DE 1998-19855890 A 19981203
WO 1999-EP9444 W 19991203

AB The invention relates to a porous composite matrix, consisting of a hyaluronic acid deriv. and hydrolyzed collagen. The biocompatible and biodegradable composite matrix can be used for tissue engineering of chondral and osseous tissue and for repairing musculoskeletal defects. The composite matrix was obtained by dissolving benzyl hyaluronate and gelatin in 1,1,1,3,3,3-hexafluoroisopropanol, addn. of NaCl crystals and drying the paste. AFter the removal of NaCl , the composite matrix was sterilized by .gamma.-rays.

IT **111744-92-4, Benzyl** Hyaluronate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(porous composite matrix based on hyaluronate and hydrolyzed collagen)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 15 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:449973 CAPLUS
DOCUMENT NUMBER: 134:61424
TITLE: Tissue engineering in the treatment of diabetic foot ulcers
AUTHOR(S): Caravaggi, Carlo; Faglia, Ezio; Dalla Paola, Luca; De Giglio, Roberto; Cavaiani, Paola; Mantero, Manuela; Gino, Michela; Quarantiello, Antonella; Sommariva, Emanuela; Pritelli, Chiara
CORPORATE SOURCE: Center for the Study and Management of the Diabetic Foot, Abbiategrasso Hospital, Abbiategrasso, 20081, Italy
SOURCE: International Congress Series (2000), 1196(New Frontiers in Medical Sciences: Redefining Hyaluronan), 313-320
CODEN: EXMDA4; ISSN: 0531-5131
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The normal healing process of ulcers is often impaired in diabetic patients, thus, contributing to the pathophysiol. that leads to amputation. Recently, great interest has been given to their treatment with growth factors and allogenic and autologous grafts. Sixty patients were treated with a two-step method of autologous grafting. A nonwoven fleece and a laser microperforated membrane (Hyalograft 3-D and Laserskin, Fidia Advanced Biopolymers, Srl Abano Terme, Italy), both composed entirely of a benzyl ester deriv. of hyaluronic acid (HA), were used as scaffolds for the cultivation of fibroblasts and keratinocytes, resp. All patients were neuropathic. The av. area of the ulcer at enrollment was 616.28 .+-. 523.81 mm2. Patients with ulcers in the plantar region or heel used a fiberglass pressure relief app., while patients with an ulcer in the dorsal region of the foot wore a fabric shoe with a rigid insole. Autologous fibroblasts were applied after the wound bed was cleansed and aseptic. After approx. 7 days, autologous keratinocytes were applied. Histol. anal. was performed on biopsies taken from 14 patients at day 0 and day 7 following autologous fibroblast application. In an av. time of 72.7 .+-. 48.18 days, 91.3% of the patients had complete healing without complications. In all biopsies, the newly formed granulation tissue was characterized by the presence of blood vessels and deposition of collagen

fibers. The high percentage of ulcers completely healed and the low incidence of complications demonstrated that this treatment was efficient and safe for diabetic foot ulcers. The promising results of this pilot study should be confirmed in a randomized, controlled clin. trial.

IT **111744-92-4**, Hyalograft **3D**
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(membrane; tissue engineering in treatment of diabetic foot ulcers)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 16 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:161838 CAPLUS
DOCUMENT NUMBER: 132:313587
TITLE: Hyaluronan-based **biopolymers** as delivery vehicles for bone-marrow-derived mesenchymal progenitors
AUTHOR(S): Radice, M.; Brun, P.; Cortivo, R.; Scapinelli, R.; Battaliard, C.; Abatangelo, G.
CORPORATE SOURCE: Institute of Histology and Embryology, University of Padova, Padua, I-35121, Italy
SOURCE: Journal of Biomedical Materials Research (2000), 50(2), 101-109
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The tolerability and safety of hyaluronan-based 3-dimensional scaffolds as a culture vehicle for mesenchymal progenitor cells was investigated in this pilot study. The proliferation patterns and extracellular matrix prodn. of rabbit and human mesenchymal, bone-marrow-derived progenitors first were characterized in vitro. Subsequently rabbit autologous cells were cultured in this hyaluronan-based scaffold and implanted in a full-thickness osteochondral lesion. In vitro histol. findings showed that mesenchymal progenitor cells adhered and proliferated onto the hyaluronan-derived scaffold. Human stem cells produced the main extracellular matrix mols., accompanied by an occasional synthesis of mature type II collagen. In vivo data demonstrated that the biomaterial, with or without mesenchymal progenitors, did not elicit any inflammatory response and was completely degraded within 4 mo after implantation. With regard to the efficacy of this cell therapy, even among the small no. of animals tested there was histol. evidence that lesions filled with the biomaterial, either seeded or unseeded with cells, achieved a faster and better healing compared to empty controls. The present data suggest that the hyaluronan-based scaffolds are well tolerated and safe and may be a valuable delivery vehicle for tissue engineering in the repair of articular cartilage defects.

IT **111744-92-4**, Hyaff 11
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hyaluronan-based **biopolymers** as delivery vehicles for bone-marrow-derived mesenchymal progenitors)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 17 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:524997 CAPLUS
DOCUMENT NUMBER: 131:174985
TITLE: Effect of process parameters on the supercritical antisolvent precipitation of microspheres of **natural polymers**
AUTHOR(S): Reverchon, E.; De Rosa, I.; Della Porta, G.
CORPORATE SOURCE: Dipartimento Ingegneria Chimica Alimentare, Universita

Salerno, Fisciano, I-84084, Italy
SOURCE: Wissenschaftliche Berichte - Forschungszentrum Karlsruhe (1999), FZKA 6271, High Pressure Chemical Engineering, 251-254
CODEN: WBFKF5; ISSN: 0947-8620
DOCUMENT TYPE: Report
LANGUAGE: English

AB Several polysaccharides are currently used as drug delivery system in form of microspheres and various routes were used to prep. such microparticles. In this work, continuous supercrit. antisolvent pptn. (SAS) was used to produce sub-micronic particles of various natural polymers, such as inulin, dextran, and poly(hyaluronic acid) (HYAFF 11). Supercrit. CO2 as the supercrit. antisolvent and DMSO as the liq. solvent was used. The effect of pressure, temp., and liq. soln. concn. was studied on the morphol., particle size, and particle size distribution of polymer particles.

IT **111744-92-4**, HYAFF 11
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(effect of process parameters on supercrit. antisolvent pptn. of microspheres of **natural polymers**)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 18 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:811119 CAPLUS
DOCUMENT NUMBER: 132:40589
TITLE: **Three-dimensional** prostheses containing hyaluronic acid derivatives
INVENTOR(S): Pastorello, Andrea; Radice, Marco; Callegaro, Lanfranco
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.L., Italy
SOURCE: PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9965534	A1	19991223	WO 1999-EP4167	19990616
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2335023	AA	19991223	CA 1999-2335023	19990616
EP 1087797	A1	20010404	EP 1999-929241	19990616
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
JP 2002518101	T2	20020625	JP 2000-554411	19990616
AU 761325	B2	20030605	AU 1999-46115	19990616
US 6642213	B1	20031104	US 2000-719200	20001208

PRIORITY APPLN. INFO.: IT 1998-PD149 A 19980617
WO 1999-EP4167 W 19990616

AB A three-dimensional prosthesis is described in the shape of a body part comprising at least one three-dimensional matrix having an essentially fibrous or porous structure and contg. a hyaluronic acid deriv. The prosthesis contains at least two of the 3-dimensional matrixes, the first of the matrixes incorporating or being adhered to the second and possible

further matrixes, the matrix(es) optionally incorporating and/or being adhered to a bidimensional perforated matrix and contg. a hyaluronic acid deriv. This prosthesis is used for reconstruction of human or animal body part.

IT **111744-92-4, Benzyl** hyaluronate
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(**three-dimensional** prostheses contg. hyaluronate and cells and polymers for reconstruction of body parts)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 19 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:414463 CAPLUS
DOCUMENT NUMBER: 131:174989
TITLE: Chondrocyte aggregation and reorganization into **three-dimensional** scaffolds
AUTHOR(S): Brun, Paola; Abatangelo, Giovanni; Radice, Marco; Zacchi, Valentina; Guidolin, Diego; Gordini, Daniela Daga; Cortivo, Roberta
CORPORATE SOURCE: Institute of Histology and Embryology, Faculty of Medicine, University of Padova, Padua, I-35121, Italy
SOURCE: Journal of Biomedical Materials Research (1999), 46(3), 337-346
CODEN: JBMRBG; ISSN: 0021-9304
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Articular cartilage has a very limited self-repairing capacity; thus, chondral lesions normally result in chronic degeneration and, eventually, osteoarthritis development. Currently, tissue engineering offers a new tool for the clin. treatment of osteochondral defects. The present investigation aimed to develop an in vitro engineered cartilage using a new class of semisynthetic scaffolds. Two non-woven meshes of hyaluronan esters (Hyaff derivs.) were seeded with sternal chick embryo chondrocytes cultured for up to 21 days, after which time they were assessed for both the cellular growth profile and histol. features. Avian chondrocytes easily adhered and proliferated onto hyaluronan-based scaffolds, demonstrating a significant preference for the fully esterified benzylic form. Histochem. staining revealed the presence of a neo-synthesized glycosaminoglycan-rich extracellular matrix, and immunohistochem. confirmed the deposition of collagen type II. Moreover, ultrastructural observations supported evidence that chondrocytes grown onto a hyaluronan-derived three-dimensional scaffold maintained their unique phenotype and organization in a cartilage-like extracellular matrix. These findings support the further pursuit of a transplantable engineered cartilage using human chondrocytes for the regeneration of chondral lesions.

IT **111744-92-4**, Hyaff 11
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(non-woven meshes; chondrocyte aggregation and reorganization into **3-dimensional** scaffolds)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 20 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:568592 CAPLUS
DOCUMENT NUMBER: 132:15516
TITLE: Mechanisms controlling diffusion and release of model proteins through and from partially esterified hyaluronic acid membranes
AUTHOR(S): Simon, L. D.; Stella, V. J.; Charman, W. N.; Charman, S. A.

CORPORATE SOURCE: Department of Pharmaceutical Chemistry, University of Kansas, Lawrence, KS, USA
SOURCE: Journal of Controlled Release (1999), 61(3), 267-279
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effects of polymer percent esterification and protein mol. wt. on the diffusion of two model proteins, DNase (DNase) and RNase A (RNase A), through and from partially esterified hyaluronic acid membranes were compared. The permeability of the polymer membranes was inversely related to the degree of polymer esterification and the mol. wt. of the protein. Transport rates of proteins through the membranes decreased dramatically over narrow ranges of polymer esterification. As expected, the apparent diffusivity of the larger protein in the polymer matrix was more sensitive to changes in membrane hydration than that of the smaller protein. These observations demonstrated the dependence of the mobility of large mol. wt. proteins on polymer hydration and chain relaxation. The relationship between protein diffusion through and release from the modified hyaluronate matrixes was also investigated using RNase A as a model. The release profiles from fully esterified membranes showed lag behavior and varied with protein load and hyaluronate hydrolysis rates, while release from less esterified membranes was rapid and independent of polymer esterification or hydrolysis. Potential applications of modified hyaluronate matrixes in the controlled delivery of proteins are discussed.

IT **111744-92-4, Benzyl** hyaluronate
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(mechanisms controlling diffusion and release of model proteins through and from partially esterified hyaluronic acid membranes)

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 21 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:290916 CAPLUS
DOCUMENT NUMBER: 131:106753
TITLE: Hyaluronic acid-based polymers as cell carriers for tissue-engineered repair of bone and cartilage
AUTHOR(S): Solchaga, Luis A.; Dennis, James E.; Goldberg, Victor M.; Caplan, Arnold I.
CORPORATE SOURCE: Skeletal Research Center, Department of Biology, Case Western Reserve University, Cleveland, OH, 44106-7080, USA
SOURCE: Journal of Orthopaedic Research (1999), 17(2), 205-213
CODEN: JOREDR; ISSN: 0736-0266
PUBLISHER: Journal of Bone and Joint Surgery, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Culture-expanded bone marrow-derived mesenchymal progenitor cells differentiate into chondrocytes or osteoblasts when implanted s.c. in vivo in combination with an appropriate delivery vehicle. This in vivo implantation technique is used to test new materials as putative delivery vehicles in skeletal tissue-engineering models. HYAFF 11 and ACP sponges, 2 biomaterials based on hyaluronic acid modified by esterification of the carboxyl groups of the glucuronic acid, were tested as osteogenic or chondrogenic delivery vehicles for rabbit mesenchymal progenitor cells and compared with a well characterized porous calcium phosphate ceramic delivery vehicle. The implant materials were examd. by SEM for differences in pore structure or cellular interactions, were quantified for their ability to bind and retain mesenchymal progenitor cells, and were examd. histol. for their ability to support osteogenesis and chondrogenesis after s.c. implantation into nude mice. The ACP sponge bound the same no. of cells as fibronectin-coated ceramic, whereas the

HYAFF 11 sponge bound 90% more. When coated with fibronectin, ACP and HYAFF 11 bound, resp., 100 and 130% more cells than the coated ceramics. HYAFF 11 sponge composites retained their integrity after the 3 or 6-wk incubation period in the animals and were processed for histomorphometric anal. As a result of rapid degrdn. or resorption in vivo, ACP sponges could not be recovered after implantation and could not be analyzed. HYAFF 11 sponges presented more area available for cell attachment and more available vol. for newly formed tissue. Following loading with mesenchymal progenitor cells and implantation, the pores of the sponges contained more bone and cartilage than the pores of ceramic cubes at either time point. Thus, relative to ceramic, HYAFF 11 sponges allow incorporation of twice as many cells and produce a 30% increase in the relative amt. of bone and cartilage/unit area. Hence, the hyaluronic acid-based delivery vehicles are superior to porous calcium phosphate ceramic with respect to the no. of cells loaded per unit vol. of implant, and HYAFF 11 sponges are superior to the ceramics with regard to the amt. of bone and cartilage formed. Addnl., hyaluronic acid-based vehicles have the advantage of degrdn./resorption characteristics that allow complete replacement of the implant with newly formed tissue.

IT **111744-92-4**, Hyaff 11
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hyaluronic acid-based polymers as cell carriers for tissue-engineered repair of bone and cartilage)

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 22 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:557802 CAPLUS
DOCUMENT NUMBER: 131:355969
TITLE: Variation in the diffusion and release of ribonuclease through and from esterified hyaluronic acid membranes: Effect of changes in matrix characteristics
AUTHOR(S): Simon, L. D.; Stella, V. J.; Charman, W. N.; Charman, S. A.
CORPORATE SOURCE: Department of Pharmaceutical Chemistry, University of Kansas, Lawrence, KS, USA
SOURCE: Journal of Controlled Release (1999), 61(1-2), 159-164
CODEN: JCREEC; ISSN: 0168-3659
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Investigations were conducted using membranes composed of esterified hyaluronic acid to det. the effect of the phys. matrix properties on protein diffusion and release. Hyaluronate membranes prepd. by a solvent evapn. method formed 2 visually distinct regions, one transparent and the other translucent. Each of the 2 regions were characterized by DSC, FTIR, and Karl Fisher titrn. for water content. The transparent region exhibited a higher endothermic transition temp. and lower water content than obsd. for the translucent region. For the transparent region, significant lag times (>50 h) were detected for the transport and release of a model protein (RNase A) compared with that for the translucent region which showed no lag time. The results highlight the importance of carefully controlling matrix formation to ensure reproducible transport and release characteristics from polymer matrixes.

IT **111744-92-4, Benzyl** hyaluronate
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(changes in matrix characteristics effect on variation in diffusion and release of RNase through and from esterified hyaluronic acid membranes)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 23 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:689257 CAPLUS
DOCUMENT NUMBER: 129:261972
TITLE: Dried contamination-free hydrocolloids and hydrogels of polysaccharides
INVENTOR(S): Meister, Frank; Hueckel, Marion; Mueller, Peter-Juergen; Buehler, Konrad; Taplick, Thomas
PATENT ASSIGNEE(S): Thueringisches Institut fuer Textil- und Kunststoff-Forschung e.V., Germany; Hans Knoell Institut fuer Naturstoff-Forschung e.V.; GWE Gesellschaft fuer Wissenschaft und Entwicklung m.b.H.
SOURCE: Ger. Offen., 6 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19712708	A1	19981001	DE 1997-19712708	19970326

PRIORITY APPLN. INFO.: DE 1997-19712708 19970326

AB Hydrocolloids and hydrogels of polysaccharides are dried with microwaves and optionally, simultaneously with IR and hot gas give products with low contamination, useful in pharmacy, cosmetics, medical technol., and biotechnol.

IT **111744-92-4, Benzyl** hyaluronate
RL: PEP (Physical, engineering or chemical process); **TEM (Technical or engineered material use)**; PROC (Process); USES (Uses)
(microwave-dried contamination-free hydrocolloids and hydrogels of polysaccharides)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L126 ANSWER 24 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:450142 CAPLUS
DOCUMENT NUMBER: 127:62875
TITLE: Culture of bone marrow stem cells partially or completely differentiated into connective tissue cells in a three-dimensional biocompatible and biodegradable matrix of hyaluronic acid derivative
INVENTOR(S): Abatangelo, Giovanni; Callegaro, Lanfranco
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.R.L., Italy; Abatangelo, Giovanni; Callegaro, Lanfranco
SOURCE: PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9718842	A1	19970529	WO 1996-EP5093	19961119
W: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2238011	AA	19970529	CA 1996-2238011	19961119
AU 9676934	A1	19970611	AU 1996-76934	19961119
AU 709236	B2	19990826		

EP 863776	A1	19980916	EP 1996-939845	19961119	
EP 863776	B1	20030129			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO					
JP 2000500372	T2	20000118	JP 1997-519385	19961119	
AT 231730	E	20030215	AT 1996-939845	19961119	
ES 2189890	T3	20030716	ES 1996-939845	19961119	
US 6596274	B1	20030722	US 1998-41287	19980312	
US 6482231	B1	20021119	US 2000-602033	20000623	

PRIORITY APPLN. INFO.:
IT 1995-PD225 A 19951120
WO 1996-EP5093 W 19961119
US 1998-41287 A2 19980312
US 1998-39200 B1 19980313

AB A biol. material useful in skin grafts consists of (A) an efficient culture of autologous or homologous bone marrow stem cells partially or completely differentiated into connective tissue-specific cells, and the extracellular matrix secreted by these cells (or alternatively the extracellular matrix secreted by bone marrow stem cells partially or completely differentiated into a specific connective tissue or by the specific homologous mature connective tissue cells, said extracellular matrix being free from any cellular component) and (B) a 3-dimensional biocompatible and biodegradable matrix consisting of a hyaluronic acid deriv. Matrix (B) is free of immunogenic nonautologous proteins which might cause an immunol. reaction against the graft. Thus, a 3-dimensional nonwoven matrix of Hyaff 11 (benzyl hyaluronate) was seeded with human fibroblasts obtained from cultures of bone marrow mesenchymal stem cells and incubated in culture medium for 7-21 days to produce an artificial dermis. During incubation, the fibroblasts deposited an extracellular matrix contg. collagen types I, III, and IV, fibronectin, and laminin.

IT **111744-92-4, Benzyl** hyaluronate
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(culture of bone marrow stem cells differentiated into connective tissue cells in three-dimensional biocompatible and biodegradable matrix of hyaluronic acid deriv.)

L126 ANSWER 25 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:609912 CAPLUS
DOCUMENT NUMBER: 125:230888
TITLE: Process for the coating of objects with hyaluronic acid, their derivatives, and **semisynthetic polymers**
INVENTOR(S): Morra, Marco; Cassinelli, Clara; Benedetti, Luca; Callegaro, Lanfranco
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers, S.R.L., Italy
SOURCE: PCT Int. Appl., 56 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9624392	A1	19960815	WO 1996-EP509	19960207
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE				
CA 2212519	AA	19960815	CA 1996-2212519	19960207
AU 9647884	A1	19960827	AU 1996-47884	19960207
AU 704047	B2	19990415		

EP 808181	A1	19971126	EP 1996-904009	19960207
EP 808181	B1	20020619		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
BR 9607516	A	19971230	BR 1996-7516	19960207
CN 1173824	A	19980218	CN 1996-191809	19960207
JP 10513378	T2	19981222	JP 1996-523988	19960207
HU 219815	B	20010828	HU 1997-2114	19960207
RU 2173563	C2	20010920	RU 1997-115374	19960207
PL 182804	B1	20020329	PL 1996-321781	19960207
AT 219381	E	20020715	AT 1996-904009	19960207
ES 2179930	T3	20030201	ES 1996-904009	19960207
NO 9703648	A	19971003	NO 1997-3648	19970807
US 6129956	A	20001010	US 1997-930858	19971007

PRIORITY APPLN. INFO.: IT 1995-PD30 A 19950207
IT 1995-PD243 A 19951220
WO 1996-EP509 W 19960207

AB Processes are provided for coating the surfaces of objects with hyaluronic acid, its derivs. or other natural or semisynthetic polymers, for applications in the fields of surgery, health care and diagnostics. The processes make it possible to bind such polymers in a stable manner to the surfaces of objects made of a wide range of materials. Surfaces treated according to the processes are characterized by a high degree of wettability, and are able to inhibit the adhesion of celles or bacteria present in the biol. fluids.

IT **111744-92-4, Benzyl** hyaluronate
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(coating of objects with hyaluronic acid, derivs., and **semisynthetic polymers**)

L126 ANSWER 26 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:915953 CAPLUS
DOCUMENT NUMBER: 123:315553
TITLE: Blends of **synthetic** and **natural polymers** as special performance materials
AUTHOR(S): Giusti, Paolo; Lazzeri, Luigi; Cascone, Maria Grazia; Seggiani, Maurizia
CORPORATE SOURCE: Dipartimento di Ingegneria Chimica, Universita di Pisa, Pisa, Italy
SOURCE: Macromolecular Symposia (1995), 100(5th European Polymer Federation Symposium on Polymeric Materials, 1994), 81-7
CODEN: MSYMEC; ISSN: 1022-1360
PUBLISHER: Huethig & Wepf
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The prepn. and characterization of blends of hyaluronic acid (or its benzyl ester) and poly(vinyl alc.) (or ethylene-vinyl alc. copolymers) were reported.

IT **111744-92-4**, Hyaluronic acid, **benzyl** ester
RL: PRP (Properties)
(blends of **synthetic** and **natural polymers** as special performance materials)

L126 ANSWER 27 OF 55 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1992:414293 CAPLUS
DOCUMENT NUMBER: 117:14293
TITLE: Methylprednisolone esters of hyaluronic acid in ophthalmic drug delivery: in vitro and in **vivo** release studies
AUTHOR(S): Kyyronen, Kristiina; Hume, Lisbeth; Benedetti, Luca; Urtti, Arto; Topp, Elizabeth; Stella, Valentino
CORPORATE SOURCE: Dep. Pharm. Chem., Univ. Kansas, Lawrence, KS,

66045-2504, USA
SOURCE: International Journal of Pharmaceutics (1992), 80(2-3), 161-9
CODEN: IJPHDE; ISSN: 0378-5173
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Films and microspheres were prepd. from various esters of hyaluronic acid. A model drug, methylprednisolone, was either phys. incorporated into the polymer matrix or chem. bound to the polymer backbone through an ester linkage. In vitro release from films with covalently bound drug was much slower (t50% = 71 h) than that for phys. dispersed drug (t50% = 2.5-17 h). Methylprednisolone concns. in the tear fluid of New Zealand rabbits were measured after ocular application of drug (approx. 420 .mu.g) in different dosage forms. When methylprednisolone was phys. dispersed in the polymer matrix, in vivo drug release from matrixes was slower than that obsd. in vitro. Compared with a suspension control, peak methylprednisolone concns. in tear fluid were 9-14 times lower after administration of drug in polymer films and AUC0-8h values were 4-7 times higher. These results imply that hyaluronic acid ester prepns. can increase the residence time of methylprednisolone in the tear fluid of rabbits.

IT **111744-92-4, Benzyl** hyaluronate
RL: BIOL (Biological study)
(films and microspheres, for methylprednisolone eye delivery)

L126 ANSWER 28 OF 55 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.
on STN DUPLICATE 1
ACCESSION NUMBER: 2003497423 EMBASE
TITLE: Clinical aspects and strategy for biomaterial engineering of an auricle based on three-dimensional stereolithography.
AUTHOR: Naumann A.; Aigner J.; Staudenmaier R.; Seemann M.; Bruening R.; Englmeier K.H.; Kadegge G.; Pavesio A.; Kastenbauer E.; Berghaus A.
CORPORATE SOURCE: A. Naumann, Dept. Otorhinolaryngology Hd. N., Ludwig Maximilian University, Marchioninistr. 15, 81377 Munich, Germany. andreas.naumann@hno.med.uni-muenchen.de
SOURCE: European Archives of Oto-Rhino-Laryngology, (2003) 260/10 (568-575).
Refs: 50
ISSN: 0937-4477 CODEN: EAOTE7
COUNTRY: Germany
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 009 Surgery
011 Otorhinolaryngology
027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: English
SUMMARY LANGUAGE: English

AB At the present time, the partial and/or complete reconstruction of an auricle from autologous rib cartilage is one of most widely published techniques. In the field of tissue engineering, different techniques have been described to generate cartilage tissue using isolated chondrocytes. The basis of these tissue-engineering techniques is bioresorbable or non-bioresorbable biomaterials, which serve as a three-dimensional cell carrier. Tissue engineering of an auricle requires preformed bioresorbable biomaterials designed to fit the form of a patient's auricular defect. Three-dimensional imaging acquired from computed tomography scans or laser surface scanning has become an important tool in modern medicine. This study represents the preoperative procedures for the reconstruction of an auricle through tissue engineering in accordance with the clinical aspects. Hyaff 11, a hyaluronic acid derivative, was used as a

three-dimensional cell carrier for isolated human nasoseptal chondrocytes. The chondrocytes were amplified in a conventional monolayer culture before the cells were seeded on a hyaluronic non-woven mesh and cultured in vitro for 4 weeks. The chondrogenic potential of human nasal chondrocytes in Hyaff 11 was investigated by confocal laser scanning microscopy, histology (toluidine blue) and immunohistochemistry (collagen type II). Computer-aided design (CAD) and manufacture of an auricle model with stereolithographical methods were used for the prefabrication of a bioresorbable three-dimensional cell carrier designed in the form of a patient's auricular defect. The cell carrier used was Hyaff 11, a fully **benzyl**-esterified hyaluronic acid derivative. Confocal laser scanning microscopy has shown good cell attachment, a homogenous distribution of amplified chondrocytes and a viability of more than 90%. After 4 weeks in vitro culture the human nasoseptal chondrocytes synthesized new cartilage with the expression of cartilage-specific collagen type II. In order to shape a patient's designed scaffold the auricle model was fitted exactly and symetrically to the contralateral side. Subsequently, the mirror image patient-specific model was used to prepare an identical scaffold model made of a fully **benzyl** -esterified hyaluronic acid derivative. The bioresorbable scaffold that was produced gave a satisfactory representation of auricle structure. Bioresorbable preformed biomaterials in the form of a patient's auricle defect represent an important prerequisite for the tissue engineering of autologous auricle grafts. Hyaff 11 seems to be a promising material for tissue engineering of cartilage transplants, and the application of this approach will improve conventional reconstructive surgery in the future.

L126 ANSWER 29 OF 55 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.
on STN DUPLICATE 3

ACCESSION NUMBER: 2001047051 EMBASE
TITLE: Morphology and metabolism of hepatocytes cultured in Petri dishes on films and in non-woven fabrics of hyaluronic acid esters.
AUTHOR: Catapano G.; De Bartolo L.; Vico V.; Ambrosio L.
CORPORATE SOURCE: G. Catapano, Department Chemical/Materials Eng., University of Calabria, Via P. Bucci cubo 17/C, I-87030 Rence (CS), Italy. catapano@unical.it
SOURCE: Biomaterials, (2001) 22/7 (659-665).
Refs: 28
ISSN: 0142-9612 CODEN: BIMADU
PUBLISHER IDENT.: S 0142-9612(00)00228-3
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 001 Anatomy, Anthropology, Embryology and Histology
002 Physiology
027 Biophysics, Bioengineering and Medical Instrumentation
029 Clinical Biochemistry
048 Gastroenterology
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Polymers of hyaluronic acid (Hyal) esters exhibit good tissue compatibility and are available in various geometrical configurations. These properties can be exploited for the design of innovative bioartificial liver support devices (BALSDs) using primary hepatocytes. In this paper, we report a preliminary investigation of the polymer feasibility of the ethyl and the benzyl Hyal ester in the form of films and non-woven fabrics for the in vitro culture of primary rat hepatocytes. Cell function was evaluated daily in Petri dishes with respect to the rate of ammonia elimination (AER) and urea synthesis (USR). Cells cultured in non-woven fabrics of the ethyl ester of Hyal (HYAFF7(nw)) exhibited an initial AER about 32% lower and synthesised urea 33% faster than that of cells on collagen films. After a week in culture, cells on collagen films

retained only a minor fraction of their initial rates. Cells cultured in non-woven fabrics of HYAFF7(nw) retained about 62 and 44% of their initial AER and USR, respectively, and exhibited an AER approximately equal to and a USR 3.6 times greater than those of cells adherent to collagen. These results suggest that non-woven fabrics of HYAFF7(nw) are promising substrata for hepatocyte culture in BALSDs. Copyright .COPYRGT. 2001 Elsevier Science Ltd.

L126 ANSWER 30 OF 55 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN DUPLICATE 5

ACCESSION NUMBER: 1999414118 EMBASE
TITLE: In vitro reconstructed tissues on hyaluronan-based temporary scaffolding.
AUTHOR: Brun P.; Cortivo R.; Zavan B.; Vecchiato N.; Abatangelo G.
CORPORATE SOURCE: G. Abatangelo, Institute Histology and Embryology, Faculty of Medicine, University of Padova, Viale G. Colombo 3, 35121 I-Padova, Italy. abatange@civ.bio.unipd.it
SOURCE: Journal of Materials Science: Materials in Medicine, (1999) 10/10-11 (683-688).
Refs: 62
ISSN: 0957-4530 CODEN: JSMMEL
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 001 Anatomy, Anthropology, Embryology and Histology
013 Dermatology and Venereology
027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Tissue engineering offers the possibility to reconstruct tissue substitutes in order to replace lost or damaged tissues. The availability of appropriate biomaterial devices is essential to allow in vitro cultured cells to behave as in the original tissues in vivo. In our studies we utilized a seminatural biomaterial made up by the **benzyl** ester of hyaluronan to grow keratinocytes, fibroblasts and chondrocytes. Keratinocytes and fibroblasts were isolated from human foreskin. Cells were separately cultured on two different hyaluronan based biomaterial devices for the first 15 days and then co-cultured for an additional period of 2 weeks. Keratinocytes gave rise to a well-differentiated epithelial layer, while fibroblasts were able to synthesize all the main extracellular molecules inside the biomaterial spaces, forming dermal-like tissues. When these two tissues were co-cultured, a skin equivalent was formed with a dermal-epidermal junction. Chondrocytes were obtained from chick-embryo sterna and cultured for 21 days inside a non-woven scaffolding made up of a hyaluronan-based biomaterial. Cells were able to organize themselves into nodules embedded in a dense metachromatic substance in which type II collagen was present. Data from this study suggest that this novel class of hyaluronan derived biomaterials is suitable for different cell culture and in vitro tissue reconstruction.

L126 ANSWER 31 OF 55 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 2002103474 EMBASE
TITLE: Comparison of the antioxidant properties of HYAFF.RTM.-11p75, AQUACEL.RTM. and hyaluronan towards reactive oxygen species in vitro.
AUTHOR: Moseley R.; Leaver M.; Walker M.; Waddington R.J.; Parsons D.; Chen W.Y.J.; Embery G.
CORPORATE SOURCE: R. Moseley, Department of Basic Dental Science, Dental School, Univ. of Wales College of Medicine, Heath Park, Cardiff, Wales CF14 4XY, United Kingdom. Moseleyr@cardiff.ac.uk
SOURCE: Biomaterials, (2002) 23/10 (2255-2264).

Refs: 49
ISSN: 0142-9612 CODEN: BIMADU
PUBLISHER IDENT.: S 0142-9612(01)00360-X
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 013 Dermatology and Venereology
027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: English
SUMMARY LANGUAGE: English

AB In chronic wounds, a number of host factors are released which perpetuate the inflammatory process, including polymorphonuclear leukocyte (PMN)-derived reactive oxygen species (ROS), such as superoxide radical (O(2)(.ovrhdot.-)) and hydroxyl radical ((.ovrhdot.)OH) species. The glycosaminoglycan, hyaluronan, has been shown to act as an antioxidant towards ROS, although the potential for biomaterials, such as HYAFF.RTM.-11p75 (the 75% benzyl ester of hyaluronan) and AQUACEL.RTM. (carboxymethylcellulose), to act in this manner has yet to be elucidated. This study compared the antioxidant properties of high and low molecular weight hyaluronan (HMWT HA and LMWT HA), HYAFF.RTM.-11p75, AQUACEL.RTM. and an AQUACEL.RTM./hyaluronan composite (AQUACEL.RTM./HA) against O(2)(.ovrhdot.-) and (.ovrhdot.)OH. The antioxidant capacities of each material were assessed by their ability to inhibit cytochrome C reduction by O(2)(.ovrhdot.-) fluxes, generated via the oxidation of hypoxanthine by xanthine oxidase, and their inhibition of 2-deoxy-D-ribose degradation by (.ovrhdot.)OH fluxes, generated by the reaction of hydrogen peroxide (H(2)O(2)) and iron (Fe(2+)). All materials studied possessed dose dependent antioxidant properties towards O(2)(.ovrhdot.-), with HYAFF.RTM.-11p75 having the greatest antioxidant potential towards these species, followed by AQUACEL.RTM., HMWT HA, AQUACEL.RTM./HA and LMWT HA. Only HMWT HA exhibited dose dependent antioxidant properties towards (.ovrhdot.)OH at the fluxes examined. Gas chromatography/mass spectrometry analysis implied that ester bonds between the hyaluronan backbone and benzyl groups of HYAFF.RTM.-11p75 are highly susceptible to O(2)(.ovrhdot.-) hydrolysis, with the de-esterified benzyl alcohol being rapidly degraded in the presence of (.ovrhdot.)OH. This data supports the hypothesis that HYAFF.RTM.-11p75 has greater antioxidant capacity towards O(2)(.ovrhdot.-), due to the esterified benzyl groups providing alternative sites for O(2)(.ovrhdot.-) attack other than the hyaluronan backbone of HYAFF.RTM.-11p75 itself and explains the inability of HYAFF.RTM.-11p75 to scavenge (.ovrhdot.)OH, due to benzyl alcohol degradation by (.ovrhdot.)OH. The antioxidant activities of these biomaterials, particularly HYAFF.RTM.-11p75 and AQUACEL.RTM., towards O(2)(.ovrhdot.-) could be beneficial, as the scavenging of PMN-derived O(2)(.ovrhdot.-) may remove initial sources of O(2)(.ovrhdot.-) and further prevent the secondary formation of (.ovrhdot.)OH. These ROS are thought to be a primary causal factor for the extensive degradation and metabolic alterations observed in chronic wounds.

L126 ANSWER 32 OF 55 EMBASE
on STN

ACCESSION NUMBER: 2002296709 EMBASE
TITLE: New microencapsulated sunscreens: Technology and comparative evaluation.
AUTHOR: Anselmi C.; Centini M.; Rossi C.; Ricci M.; Rastrelli A.; Andreassi M.; Buonocore A.; La Rosa C.
CORPORATE SOURCE: C. Anselmi, Dipto. Farmaco Chimico Tecnologico, Sc. di Spec. in Sci. e Tecn. Cosmet., Universita di Siena, Via della Diana 2, 53100 Siena, Italy. anselmic@unisi.it
SOURCE: International Journal of Pharmaceutics, (21 Aug 2002) 242/1-2 (207-211).
Refs: 12

ISSN: 0378-5173 CODEN: IJPHDE
PUBLISHER IDENT.: S 0378-5173(02)00159-X
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 037 Drug Literature Index
039 Pharmacy
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The aim of this work is to obtain new technologically improved microencapsulated sunscreens characterised by UV-radiation stability, good substantivity, low toxicity, a better tolerability and easiness to formulation. For this purpose we prepared two different systems using semisynthetic Hyaluronic Acid (HA) benzyl ester and a synthetic polymer (patent pending). We obtained these systems using two different methodologies: emulsification/solvent evaporation and emulsification/solvent extraction. The comparison between the two formulated systems was carried out in terms of their chemical-physical and biological properties.

L126 ANSWER 33 OF 55 EMBASE
on STN
ACCESSION NUMBER: 96160646 EMBASE
DOCUMENT NUMBER: 1996160646
TITLE: Quantitative assessment of the tissue response to films of hyaluronan derivatives.
AUTHOR: Campoccia D.; Hunt J.A.; Doherty P.J.; Zhong S.P.; O'Regan M.; Benedetti L.; Williams D.F.
CORPORATE SOURCE: Department of Clinical Engineering, University of Liverpool, PO Box 147,Liverpool L69 3BX, United Kingdom
SOURCE: Biomaterials, (1996) 17/10 (963-975).
ISSN: 0142-9612 CODEN: BIMADU
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
LANGUAGE: English
SUMMARY LANGUAGE: English
AB The aim of this study was to evaluate the in vivo response following implantation into a rat model of three innovative hyaluronan derivatives for clinical use: HYAFF 7, HYAFF 11 and HYAFF 11p75 (respectively, the 100% ethyl ester, 100% and 75% **benzyl** esters). The tissue reaction evoked by films of these new biomaterials implanted into the dorsolumbar musculature of rats was assessed quantitatively using a well established technique based upon an image analysis system. The number of inflammatory cells present and the patterns of cell distribution around the implant up to a distance of 642 .mu.m were examined at different time periods after implantation. Since a well-delineated tissue-material interface was needed for this type of investigation, it was not possible to apply image analysis to sections once dissolution of the implanted materials had begun. Films of both the total esters, HYAFF 7 and HYAFF 11, were found to undergo a slow dissolution process and, after a month, films of these materials were still present at the site of implantation. Differences in response to the two materials were observed only during the first two weeks, particularly with respect to neutrophil distribution and total cellularity. HYAFF 7 was found to be more reactive, with higher numbers of neutrophils near the surface of the implant than HYAFF 11. Thereafter, the differences between the two materials were minimal and owing mainly to a faster dissolution of HYAFF 7 films. After 3 and 5 months, considerable degradation of films of both total esters had occurred. Significant quantities of material appeared inside numerous macrophages with an ED1-positive phenotype. Only a very thin layer of fibrous connective tissue, indicative of low reactivity, was found to

surround the site of implantation, separating the dissolved material and the phagocytic cells from healthy muscular tissue. ED2-positive macrophages were primarily confined within the lining connective tissue. The partial **benzyl** ester, HYAFF 11p75, showed a different behaviour. In fact, evidence of film dissolution was already present a week after the implantation. After two weeks, the implanted films were completely dissolved and numerous ED1-positive macrophages phagocytosing the material were observed at the site of implantation. Therefore, in agreement with previous in vitro studies, which showed a greater susceptibility to degradation of hyaluronan derivatives with lower percentage of esterification, HYAFF 11p75 underwent resorption faster than the corresponding total ester.

L126 ANSWER 34 OF 55 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 95274627 EMBASE
DOCUMENT NUMBER: 1995274627
TITLE: Solute diffusion in ionizable hydrogels.
AUTHOR: Topp E.M.; Sung K.C.
CORPORATE SOURCE: Dept. Pharmaceutical Chemistry, University of Kansas,Lawrence, KS 66045, United States
SOURCE: Proceedings of the Controlled Release Society, (1995) -/22 (348-349).
ISSN: 1022-0178 CODEN: 58GMAH
COUNTRY: United States
DOCUMENT TYPE: Journal; Conference Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English

L126 ANSWER 35 OF 55 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 94290652 EMBASE
DOCUMENT NUMBER: 1994290652
TITLE: Ocular sustained delivery of prednisolone using hyaluronic acid benzyl ester films.
AUTHOR: Hume L.R.; Lee H.K.; Benedetti L.; Sanzgiri Y.D.; Topp E.M.; Stella V.J.
CORPORATE SOURCE: Dept. of Pharmaceutical Chemistry, Center for Drug Delivery Research, University of Kansas,Lawrence, KS 66045-2504, United States
SOURCE: International Journal of Pharmaceutics, (1994) 111/3 (295-298).
ISSN: 0378-5173 CODEN: IJPHDE
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 012 Ophthalmology
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English

AB Hyaluronic acid benzyl ester films were studied for ocular delivery of prednisolone. The four polymers used were HYAFF 11 p25 (25% benzyl ester, 75% sodium salt), HYAFF 11 p50 (50% benzyl ester, 50% sodium salt), HYAFF 11 p75 (75% benzyl ester, 25% sodium salt) and HYAFF 11 (100% benzyl ester). The polymer with the lowest degree of esterification, HYAFF 11 p25, was the most hydrophilic and released drug faster than those with higher degrees of esterification, HYAFF 11 and HYAFF 11 p75, which are generally less hydrophilic. Tear fluid prednisolone concentrations were measured in rabbits after administration of the test films. Areas under the tear fluid concentration vs time curves (AUC(0-8 h)) were calculated

for all the dosage forms, from the time of dosing to 8 h post-dosing. The HYAFF 11 p25 films provided higher initial concentrations which rapidly declined below 30 .mu.g/ml, 2 h post-dosing. Concentrations for the HYAFF 11 p75 film dropped below 30 .mu.g/ml, 3 h post-dosing. The HYAFF 11 films provided the best results with sustained concentrations between 45 and 72 .mu.g/ml for the 8 h study period. The results show that sustained delivery of prednisolone to the eye may be achieved with the use of hyaluronic acid esters.

L126 ANSWER 36 OF 55 EMBASE
on STN
ACCESSION NUMBER: 92182077 EMBASE
DOCUMENT NUMBER: 1992182077
TITLE: Drug release from membranes of hyaluronic acid and its esters.
AUTHOR: Joshi H.N.; Stella V.J.; Topp E.M.
CORPORATE SOURCE: Department Pharmaceutical Chemistry, University of Kansas,Lawrence, KS 66045-2504, United States
SOURCE: Journal of Controlled Release, (1992) 20/2 (109-121). ISSN: 0168-3659 CODEN: JCREEC
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 027 Biophysics, Bioengineering and Medical Instrumentation
029 Clinical Biochemistry
030 Pharmacology
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Drug release from three types of hyaluronated based (sodium hyaluronate and ethyl and benzyl esters of hyaluronic acid) membranes was investigated. In the membranes, drug was either: 1) physically incorporated, 2) physically incorporated in the membrane, then laminated with a second polymer or 3) covalently bound to the polymer. The release of model compounds was found to be rapid when the compounds were physically incorporated; the release could be slowed by laminating the core membranes. Permeability and partition coefficient values were used to explain the release profiles. The amount of drug released was linearly related to the square root of time for both 'physically incorporated' and 'laminated' systems. When drug was covalently bound to the polymer, the release was slow and near zero-order. The solubility of the polymer and/or the hydrolysis of ester bonds are thought to be some of the important processes involved in drug release. The results suggest that a range of release rates can be achieved with hyaluronate based membrane systems.

L126 ANSWER 37 OF 55 DRUGU on STN
ACCESSION NUMBER: 1996-06698 DRUGU G
TITLE: Effect of drug hydrophilicity and membrane hydration on diffusion in hyaluronic acid ester membranes.
AUTHOR: Sung K C; Topp E M
CORPORATE SOURCE: Univ.Kansas
LOCATION: Lawrence, Kans., USA
SOURCE: J.Controlled Release (37, No. 1-2, 95-104, 1995) 4 Fig. 2 Tab. 18 Ref.
CODEN: JCREEC ISSN: 0168-3659
AVAIL. OF DOC.: Department of Pharmaceutical Chemistry, The University of Kansas, Lawrence, KS 66045-2504, U.S.A. (E.M.T.).
LANGUAGE: English
DOCUMENT TYPE: Journal
FIELD AVAIL.: AB; LA; CT
FILE SEGMENT: Literature
AB The permeation of hydrophilic drugs (5-fluorouracil (5-FU) theophylline (TH), and thymidine (TY) (all Sigma-Chem.)) through hydrated membranes

prepared from partial **benzyl esters** of **hyaluronic** acid (HA: HYAFF, Fidia) was consistent with free volume theory (i.e. via fluctuating **pores** or channels within the polymer matrix). Deviations from free volume theory were found for hydrophobic drugs (propylparaben (PP), fluocinolone acetonide (FA) and hydrocortisone (HC) (all Sigma-Chem.)) suggesting that interaction with the polymer and diffusion through polymer-rich domains contributed to their cumulative permeation behavior.

L126 ANSWER 38 OF 55 PASCAL COPYRIGHT 2004 INIST-CNRS. ALL RIGHTS RESERVED. on STN

ACCESSION NUMBER: 1998-0490292 PASCAL
COPYRIGHT NOTICE: Copyright .COPYRGT. 1998 INIST-CNRS. All rights reserved.
TITLE (IN ENGLISH): Cartilage tissue engineering with novel **nonwoven** structured biomaterial based on **hyaluronic** acid **benzyl ester**
AUTHOR: AIGNER J.; TEGELER J.; HUTZLER P.; CAMPOCCIA D.; PAVESIO A.; HAMMER C.; KASTENBAUER E.; NAUMANN A.
CORPORATE SOURCE: Department of Otorhinolaryngology, Ludwig-Maximilians University of Munich, Germany, Federal Republic of; Department of Pathology, GSF Neuherberg, Oberschleissheim, Germany, Federal Republic of; Fidia Advanced Biopolymers Srl, Abano Terme, Italy; Institute of Surgical Research, Ludwig-Maximilians University of Munich, Germany, Federal Republic of
SOURCE: Journal of biomedical materials research, (1998), 42(2), 172-181, 48 refs.
ISSN: 0021-9304 CODEN: JBMRBG
DOCUMENT TYPE: Journal
BIBLIOGRAPHIC LEVEL: Analytic
COUNTRY: United States
LANGUAGE: English
AVAILABILITY: INIST-13764, 354000070366930020

AB The aim of this study was to investigate the possibility of using the **benzyl ester** of **hyaluronic** acid (HYAFF.RTM. 11), a recently developed semisynthetic resorbable material, as a scaffold for the culture of human nasoseptal chondrocytes in tissue-engineering procedures of cartilage reconstruction. Different techniques such as immunohistochemistry, scanning electron microscopy, and confocal laser scanning microscopy were used to study the behavior, morphology, and phenotype expression of the chondrocytes, which were initially expanded and then seeded on the material. The **nonwoven** cell carrier allowed good viability and adhesivity of the cells without any surface treatment with additional substances. Furthermore, the cultured cells expressed cartilage-specific collagen type II, indicating that they were able to redifferentiate within the scaffold of HYAFF.RTM. 11 and were able to retain a chondrocyte phenotype even after a long period of in vitro conditions. Nevertheless, the expression of collagen type I, which was produced by dedifferentiated or incompletely redifferentiated chondrocytes, was noticeable. Additional data were obtained by subcutaneous implantation of samples seeded with human cells in the in vivo model of the athymic nude mouse. The results after 1 month revealed the development of tissue similar to hyaline cartilage. This study is promising for the use of this scaffold for tissue engineering of cartilage replacements.

L126 ANSWER 39 OF 55 BIOTECHNO COPYRIGHT 2004 Elsevier Science B.V. on STN

ACCESSION NUMBER: 2002:34251070 BIOTECHNO
TITLE: Platelet adhesion to commercial and modified polymer materials in animals under psychological stress and in a no-stress condition
AUTHOR: Barbucci R.; Lamponi S.; Aloisi A.M.

CORPORATE SOURCE: R. Barbucci, Department of Chemical Technologies, Via Ettore Bastianini, 12, 53100 Siena, Italy.
E-mail: barbucci@unisi.it
SOURCE: Biomaterials, (2002), 23/9 (1967-1973), 32 reference(s)
CODEN: BIMADU ISSN: 0142-9612
PUBLISHER ITEM IDENT.: S0142961201003234
DOCUMENT TYPE: Journal; Article
COUNTRY: United Kingdom
LANGUAGE: English
SUMMARY LANGUAGE: English

AB It is well known that stressful stimuli change blood functions and that protein and platelet parameters are altered in humans and animals subjected to stress. We have examined the influence of psychological stress on the morphological responses of platelets on commercially available materials [polyester (VP), fluoropassivated polyester (VPF), **non-woven benzylic ester** of **hyaluronic** acid (Hyaff11)] and on materials synthesised (PUPA) and/or surface modified by sulphation (Hyaff11S) or by immobilisation of the anticoagulant molecules heparin and sulphated hyaluronic acid (PUPA-Heparin, PUPA-HyalS, HyalS-PET). Moreover, the anticoagulant activity (i.e. thrombin inactivation) of the materials was analysed. In the no-stress condition, the surfaces with a low degree of platelet adhesion were Hyaff11S, HyalS-PET, PUPA-Heparin and PUPA-HyalS. Hyaff11, PET and PUPA had the highest number of adherent platelets within the series. VP and VPF exhibited an intermediate behaviour. The exposure of animals to stress induced a dramatic change in platelet number and morphology on PET, HyalS-PET, PUPA, PUPA-HyalS and Hyaff11: there was a higher degree of platelet adhesion, increased platelet spreading and the appearance of pseudopodia. In VP, VPF, Hyaff11S and PUPA-Heparin, there were no changes in platelet adhesion in stress conditions with respect to the no-stress condition; the latter two materials, the only ones able to prolong thrombin time, had a very low number of adherent platelets.

L126 ANSWER 40 OF 55 BIOTECHNO COPYRIGHT 2004 Elsevier Science B.V. on STN
ACCESSION NUMBER: 2002:33109037 BIOTECHNO
TITLE: Physico-chemical properties and degradability of **non-woven hyaluronan benzylic esters** as tissue engineering scaffolds
AUTHOR: Milella E.; Brescia E.; Massaro C.; Ramires P.A.; Miglietta M.R.; Fiori V.; Aversa P.
CORPORATE SOURCE: E. Milella, Interdisciplinary Research Center, University of Naples Federico II, P.le Tecchio 80, 80125 Naples, Italy.
E-mail: milella@unina.it
SOURCE: Biomaterials, (15 FEB 2002), 23/4 (1053-1063), 14 reference(s)
CODEN: BIMADU ISSN: 0142-9612
PUBLISHER ITEM IDENT.: S0142961201002174
DOCUMENT TYPE: Journal; Article
COUNTRY: United Kingdom
LANGUAGE: English
SUMMARY LANGUAGE: English

AB The development of biocompatible materials which can be processed into three-dimensional scaffolds and the design of appropriate configurations in order to enable the cellular infiltration and proliferation is a major issue in the tissue engineering. The **hyaluronan** total **benzyl ester** (Hyaff.RTM.11) has been found to be suitable substrate to grow a variety of cell types. Since structural, physical, chemical and biological data can help for tailoring appropriate scaffold for tissue engineering, information on chemico-physical

properties on degradability of **hyaluronan** total **benzyl ester non-woven** has been obtained. The thermal analysis, the evaluation of the surface chemical composition, the morphology, the mechanical behaviour and the swelling tests were carried out on these materials. The **hyaluronan** total **benzyl ester non-woven** showed a thermal stability up to 220.degree.C and the surface composition differed from that of the bulk for C-O and C-C contribution. No contaminant were detected. The **non-woven** swelled in culture medium. Moreover the mechanical tests showed that when submitted to a press treatment, the samples have best mechanical properties. The pressed Hyaff.RTM.11 **non-woven** undergoes degradation when exposed to DMEM. The frying and breaking of the fibres, a decrease of the mechanical properties and a molecular weight loss have been observed. First, the ester bond of the Hyaff.RTM.11 **non-woven** is hydrolysed and the benzylic alcohol is released and the low molecular weight values indicate that a cleavage of the polymer is promoted by the components of the culture medium. After 11 days, some fragments, constituted by hyaluronic acid with a molecular weight of 23,000 Da became soluble in the medium. No oligomer was detected.

L126 ANSWER 41 OF 55 TOXCENTER COPYRIGHT 2004 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2002:58908 TOXCENTER
COPYRIGHT: Copyright 2004 ACS
DOCUMENT NUMBER: CA13613205509W
TITLE: Hyaluronic acid esters, threads and biomaterials containing them, and their use in surgery
AUTHOR(S): Bellini, Davide; Callegaro, Lanfranco
PATENT INFORMATION: US 2002026039 A1 28 Feb 2002
SOURCE: (2002) U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of U.S. Ser. No. 236,958.
CODEN: USXXCO.
COUNTRY: ITALY
DOCUMENT TYPE: Patent
FILE SEGMENT: CAPLUS
OTHER SOURCE: CAPLUS 2002:158403
LANGUAGE: English
ENTRY DATE: Entered STN: 20020305
Last Updated on STN: 20030211

AB The application discloses esters of hyaluronic acid, wherein a first part of the carboxylic functions is esterified with an araliph. alc. and a second part is esterified with at least one long-chain, straight C10-22 aliph. alc. The possible remaining non-esterified carboxylic functions, if present, are salified. The application further discloses biocompatible threads having a multifilament conformation comprising filaments formed by the hyaluronic acid esters in combination with other biocompatible polymers, such as PTFE, polyglycolic acid, polylactic acid, polycaprolactone, etc. The biocompatible threads are useful in medicine and surgery, as, e.g., sutures, scaffolds for cell culture in the form of gauzes, meshes, **non-woven** fabrics, tubes, etc. For example, a hyaluronic acid ester was prepd. by reacting 6.21 g of tetra-Bu ammonium salt of hyaluronic acid with 0.89 mL of benzyl bromide and 0.83 g of octadecyl bromide to obtain 5.1 g of **hyaluronic** acid **benzyl** octadecyl **ester**. A mixed multifilament was prepd. by extrusion of this ester in combination with a multifilament of PTFE.

L126 ANSWER 42 OF 55 TOXCENTER COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:217410 TOXCENTER
COPYRIGHT: Copyright 2004 ACS
DOCUMENT NUMBER: CA13710145462J
TITLE: Physico-chemical properties and degradability of

non-woven hyaluronan benzylic esters as tissue engineering scaffolds

AUTHOR(S): Milella, E.; Brescia, E.; Massaro, C.; Ramires, P. A.; Miglietta, M. R.; Fiori, V.; Aversa, P.
CORPORATE SOURCE: Biomaterials Unit, PASTIS-CNRSM, Brindisi, Italy.
SOURCE: Biomaterials, (2001) Vol. 23, No. 4, pp. 1053-1063. CODEN: BIMADU. ISSN: 0142-9612.
COUNTRY: ITALY
DOCUMENT TYPE: Journal
FILE SEGMENT: CAPLUS
OTHER SOURCE: CAPLUS 2001:861940
LANGUAGE: English
ENTRY DATE: Entered STN: 20011204
Last Updated on STN: 20020903

AB The development of biocompatible materials which can be processed into three-dimensional scaffolds and the design of appropriate configurations in order to enable the cellular infiltration and proliferation is a major issue in the tissue engineering. The **hyaluronan** total **benzyl ester** (Hyaff11) has been found to be suitable substrate to grow a variety of cell types. Since structural, phys., chem. and biol. data can help for tailoring appropriate scaffold for tissue engineering, information on chemico-phys. properties on degradability of **hyaluronan** total **benzyl ester non-woven** has been obtained. The thermal anal., the evaluation of the surface chem. compn., the morphol., the mech. behavior and the swelling tests were carried out on these materials. The **hyaluronan** total **benzyl ester non-woven** showed a thermal stability up to 220.degree. and the surface compn. differed from that of the bulk for C-O and C-C contribution. No contaminant were detected. The **non-woven** swelled in culture medium. Moreover the mech. tests showed that when submitted to a press treatment, the samples have best mech. properties. The pressed Hyaff11 **non-woven** undergoes degrdn. when exposed to DMEM. The frying and breaking of the fibers, a decrease of the mech. properties and a mol. wt. loss have been obsd. First, the ester bond of the Hyaff11 **non-woven** is hydrolyzed and the benzylic alc. is released and the low mol. wt. values indicate that a cleavage of the polymer is promoted by the components of the culture medium. After 11 days, some fragments, constituted by hyaluronic acid with a mol. wt. of 23,000 Da became sol. in the medium. No oligomer was detected.

L126 ANSWER 43 OF 55 TOXCENTER COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:211761 TOXCENTER
COPYRIGHT: Copyright 2004 ACS
DOCUMENT NUMBER: CA13201006391U
TITLE: Biomaterials containing hyaluronic acid derivatives in the form of three-dimensional structures free from cellular components or products thereof, for the in vivo regeneration of tissue cells
AUTHOR(S): Pavesio, Alessandra; Dona', Massimo; Callegaro, Lanfranco
CORPORATE SOURCE: ASSIGNEE: Fidia Advanced Biopolymers S.r.L.
PATENT INFORMATION: WO 9961080 A1 2 Dec 1999
SOURCE: (1999) PCT Int. Appl., 37 pp. CODEN: PIXXD2.
COUNTRY: ITALY
DOCUMENT TYPE: Patent
FILE SEGMENT: CAPLUS
OTHER SOURCE: CAPLUS 1999:763921
LANGUAGE: English
ENTRY DATE: Entered STN: 20011116
Last Updated on STN: 20020403

AB Use of biocompatible biomaterials contg. hyaluronic acid derivs., with

three-dimensional structures enclosing **hollow** spaces created by communicating **pores** and/or **entangled** fine, **fibers** or microfibres, free from cellular components or products thereof for the in vivo regeneration of tissue cells is disclosed. The tissue obtained by this regeneration, has the same structure, functions as the corresponding natural tissue and is well integrated in the adjacent tissue cells. **Benzyl ester** of **hyaluronic** acid (65% **esterification**) was implanted in bones of rats paws. After 24 days the ester induced a greater degree of bone regeneration than the total **benzyl ester** or **hyaluronic** acid in powder form.

L126 ANSWER 44 OF 55 TOXCENTER COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:180877 TOXCENTER
COPYRIGHT: Copyright 2004 ACS
DOCUMENT NUMBER: CA121202384672
TITLE: Multilayer **nonwoven** tissue containing a surface layer comprising at least one hyaluronic acid ester
AUTHOR(S): Dorigatti, Franco; Callegaro, Lanfranco
CORPORATE SOURCE: ASSIGNEE: Fidia Advanced Biopolymers S.r.L.
PATENT INFORMATION: WO 9417837 A1 18 Aug 1994
SOURCE: (1994) PCT Int. Appl., 23 pp.
CODEN: PIXXD2.
COUNTRY: ITALY
DOCUMENT TYPE: Patent
FILE SEGMENT: CAPLUS
OTHER SOURCE: CAPLUS 1994:638467
LANGUAGE: English
ENTRY DATE: Entered STN: 20011116
Last Updated on STN: 20020910

AB A multilayer **nonwoven** material, comprising a surface layer which comes into contact with the skin, such as hyaluronic acid ester, and one or more other layers which do not come into contact with the skin. This material can be employed in a wide variety of medical and sanitary applications, including surgery and as a non-adhesive covering material. A multilayer **nonwoven** tissue composed of a layer of **hyaluronic** acid **benzyl ester** (Hyaff 11) and a layer of **nonwoven** viscose (Jettex 2005), with 2mm thickness and water absorption of 56% was prepd.

L126 ANSWER 45 OF 55 TOXCENTER COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:169578 TOXCENTER
COPYRIGHT: Copyright 2004 ACS
DOCUMENT NUMBER: CA11916167841N
TITLE: **Non-woven** fabric material comprising hyaluronic acid derivatives in surgery
AUTHOR(S): Dorigatti, Franco; Callegaro, Lanfranco; Romeo, Aurelio
CORPORATE SOURCE: ASSIGNEE: M.U.R.S.T.
PATENT INFORMATION: WO 9311803 A1 24 Jun 1993
SOURCE: (1993) PCT Int. Appl., 53 pp.
CODEN: PIXXD2.
COUNTRY: ITALY
DOCUMENT TYPE: Patent
FILE SEGMENT: CAPLUS
OTHER SOURCE: CAPLUS 1993:567841
LANGUAGE: English
ENTRY DATE: Entered STN: 20011116
Last Updated on STN: 20020917

AB Biomaterials are disclosed which are comprised of biodegradable, biocompatible, and bioabsorbable **nonwoven** fabric materials. The **nonwoven** fabric materials are comprised of threads imbedded in a matrix; both matrix and threads can be comprised of hyaluronic acid esters, singly or in combination with esters of alginic acid or other

polymers. The fabric can be used for treating skin pathol., surgery, etc. Prepn. of a variety of hyaluronic acid esters is described, as is manuf. of the fabric. A **nonwoven** fabric of **hyaluronic** acid **benzyl ester** was impregnated with vancomycin.

L126 ANSWER 46 OF 55 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 2003:656896 SCISEARCH
THE GENUINE ARTICLE: 704VC
TITLE: Gland cell cultures into 3D hyaluronan-based scaffolds
AUTHOR: Zavan B (Reprint); Cortivo R; Tonello C; Abatangelo G
CORPORATE SOURCE: Univ Padua, Dept Histol Microbiol & Med Biotechnol, I-35100 Padua, Italy (Reprint)
COUNTRY OF AUTHOR: Italy
SOURCE: JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE, (AUG 2003) Vol. 14, No. 8, pp. 727-729.
Publisher: KLUWER ACADEMIC PUBL, VAN GODEWIJCKSTRAAT 30, 3311 GZ DORDRECHT, NETHERLANDS.
ISSN: 0957-4530.
DOCUMENT TYPE: Article; Journal
LANGUAGE: English
REFERENCE COUNT: 7

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB In this study we report a preliminary investigation of the feasibility of **non-woven**/sponge fabrics of a **hyaluronan** derived biomaterials (**benzyl ester** of HA (HYAFF-11(TM) FAB, Abano Terme, Italy) for the in vitro culture of rat hepatocytes and rat beta cells. Cell growth on hyaluronan derived biomaterials were tested in the presence of complete medium and in the presence of ECM (extracellular matrix) secreted by fibroblasts previously cultured into the scaffold. Hepatocytes and beta cells were extracted from rat liver/pancreas and seeded either on the HYAFF-11(TM) scaffold alone, or on HYAFF-11(TM) scaffold containing ECM. Direct assay of cell proliferation was performed with MTT test. For morphological observations samples were stained with hematoxylin and eosin. The results obtained by MTT test showed that hepatocytes cultivated in both the above described conditions were able to proliferate up to 14 days and Langerhans islet up to 21 days. After this time, cells started to undergo apoptosis. The morphological analyses showed cell aggregation in three-dimensional structures promoted by the fibers of the biomaterial.

Our results confirmed that HYAFF-11(TM) meshes represent a suitable scaffold for hepatocyte adhesion/Langerhans islet organization and proliferation. In particular, the presence of a fibroblast secreted extracellular matrix improves the biological property of the scaffold. (C) 2003 Kluwer Academic Publishers

L126 ANSWER 47 OF 55 USPATFULL on STN
ACCESSION NUMBER: 2003:258636 USPATFULL
TITLE: Percarboxylated polysaccharides, and a process for their preparation
INVENTOR(S): Bellini, Davide, Montegrotto Terme, ITALY
Crescenzi, Vittorio, Roma, ITALY
Francescangeli, Andrea, Roma, ITALY

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003181689	A1	20030925
APPLICATION INFO.:	US 2003-376369	A1	20030228 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. WO 2001-EP10062, filed on 31 Aug 2001, UNKNOWN

	NUMBER	DATE
PRIORITY INFORMATION:	IT 2000-PD20000020820000831	
DOCUMENT TYPE:	Utility	
FILE SEGMENT:	APPLICATION	
LEGAL REPRESENTATIVE:	CLARK & ELBING LLP, 101 FEDERAL STREET, BOSTON, MA, 02110	
NUMBER OF CLAIMS:	33	
EXEMPLARY CLAIM:	1	
NUMBER OF DRAWINGS:	2 Drawing Page(s)	
LINE COUNT:	943	

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to percarboxylated polysaccharide selected from the group consisting of gellan, carboxymethylcellulose, pectic acid, pectin and hyaluronic acid derivatives; the process for their preparation and their use in the pharmaceutical, biomedical, surgical and healthcare fields.

IT **111744-92-4DP**, Hyaff 11, percarboxylated
(prepn. of percarboxylated polysaccharides for medicinal uses)

L126 ANSWER 48 OF 55 USPATFULL on STN

ACCESSION NUMBER:	2003:58122 USPATFULL		
TITLE:	Wound dressing		
INVENTOR(S):	John Chen, Wai Yuen, Wilmslow, UNITED KINGDOM Moseley, Ryan, Caerau Maesteg Mid-Glamorgan, UNITED KINGDOM Waddington, Rachel Jane, Cardiff, UNITED KINGDOM Walker, Michael, Brynford, UNITED KINGDOM		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2003040690	A1	20030227
APPLICATION INFO.:	US 2002-107964	A1	20020327 (10)
	NUMBER		DATE
PRIORITY INFORMATION:	GB 2001-7653		20010327
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	ALLEN BLOOM, C/O DECHERT, PRINCETON PIKE CORPORATION CENTER, P.O. BOX 5218, PRINCETON, NJ, 08543-5218		
NUMBER OF CLAIMS:	21		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	7 Drawing Page(s)		
LINE COUNT:	339		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Use of a **polymer** which is swellable in aqueous media for the manufacture of a wound dressing comprising the **polymer** to reduce the concentration of superoxide radical in a wound by application of the wound dressing externally thereto. This is believed to reduce the effect of at least certain types of ROS in frustrating the healing of chronic wounds.

IT **111744-92-4**, Hyaff 11
(polysaccharides-based wound dressings)

L126 ANSWER 49 OF 55 USPATFULL on STN

ACCESSION NUMBER:	2003:291176 USPATFULL
TITLE:	**Three-dimensional prostheses** containing hyaluronic acid derivatives
INVENTOR(S):	Pastorello, Andrea, Abano Terme, ITALY Radice, Marco, Formigine, ITALY Callegaro, Lanfranco, Thiene, ITALY

PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.l., Brindisi, ITALY (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6642213	B1	20031104	
	WO 9965534		19991223	
APPLICATION INFO.:	US 2000-719200		20001208	(9)
	WO 1999-EP4167		19990616	

	NUMBER	DATE
PRIORITY INFORMATION:	IT 1998-PD149	19980617

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: O'Sullivan, Peter
LEGAL REPRESENTATIVE: Hedman & Costigan, P.C.
NUMBER OF CLAIMS: 29
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 0 Drawing Figure(s); 0 Drawing Page(s)
LINE COUNT: 752
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A **three-dimensional prosthesis** is described in the shape of a body part comprising at least one **three-dimensional** matrix having an essentially fibrous or porous structure and containing a hyaluronic acid derivative, said **prosthesis**, contains at least two of said **three-dimensional** matrixes, the first of said **three-dimensional** matrixes incorporating or being adhered to the second and possible further matrixes, said **three-dimensional** matrix(es) optionally inicorporating and/or being adhered to a bidimensional perforated matrix and containing a hyaluronic acid derivative. This **prosthesis** is used for reconstruction of human or animal body part.

IT **111744-92-4**, Benzyl hyaluronate
(**three-dimensional prostheses** contg. hyaluronate and cells and **polymers** for reconstruction of body parts)

L126 ANSWER 50 OF 55 USPATFULL on STN
ACCESSION NUMBER: 2003:196942 USPATFULL
TITLE: Biological material containing bone marrow stem cells partially or completely differentiated into connective tissue cells and a hyaluronic acid ester matrix
INVENTOR(S): Abatangelo, Giovanni, Saccolongo, ITALY
Callegaro, Lanfranco, Thiene, ITALY
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.l., Brindisi, ITALY (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6596274	B1	20030722	
	WO 9718842		19970529	
APPLICATION INFO.:	US 1998-41287		19980312	(9)
	WO 1996-EP5093		19961119	

	NUMBER	DATE
PRIORITY INFORMATION:	IT 1995-PD225	19951120

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Naff, David M.
ASSISTANT EXAMINER: Ware, Deborah K.

LEGAL REPRESENTATIVE: Hedman & Costigan, P.C.
NUMBER OF CLAIMS: 19
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 10 Drawing Figure(s); 5 Drawing Page(s)
LINE COUNT: 639
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A biological material comprising two components is provided containing a first component comprising alternatively (1) a culture of autologous or homologous bone marrow stem cells partially or completely differentiated into specific connective tissue cellular lines or (2) a sole extracellular matrix free from any cellular component secreted by the specific connective tissue cellular lines; and a second component containing a **three-dimensional** biocompatible and biodegradable matrix consisting of a hyaluronic acid ester having a degree of esterification comprised between 25 and 100%. The specific tissue cell lines are selected from fibroblasts, osteoblasts, myoblasts, adipocytes, chondrocytes and endothelial cells. The biological material is suitable for use as a dermal substitute in cutaneous lesions as well as repairing damaged connective tissue.

IT **111744-92-4**, Benzyl hyaluronate
(culture of bone marrow stem cells differentiated into connective tissue cells in **three-dimensional** biocompatible and biodegradable matrix of hyaluronic acid deriv.)

L126 ANSWER 51 OF 55 USPATFULL on STN
ACCESSION NUMBER: 2002:303586 USPATFULL
TITLE: Biological material for the repair of connective tissue defects comprising mesenchymal stem cells and hyaluronic acid derivative

INVENTOR(S): Abatangelo, Giovanni, Via Pelosa 32, 35030 Saccolongo (Prov. of Padova), ITALY
Callegaro, Lanfranco, Via Monte Grappa 6, 35016 Thiene (Prov. of Vicenza), ITALY
Young, Randell G., 8418 West Grove Rd., Ellicott City, MD, United States 21043
Murphy, Josephine Mary, 2510 Pickwick Rd., Baltimore, MD, United States 21207
Fink, David Jordan, 303 Wendover Rd., Baltimore, MD, United States 21218
Bruder, Scott Philip, 3698 Ashley Way, Owings Mills, MD, United States 21117
Barry, Francis Peter, 2510 Pickwick Rd., Baltimore, MD, United States 21207
Kadiyala, Sudhakar, 1531 Lancaster St., Baltimore, MD, United States 21231
Caplan, Arnold I., 1300 Oakridge Dr., Cleveland Heights, OH, United States 44121
Moskowitz, Roland, 2846 Montgomery Rd., Shaker Heights, OH, United States 44122
Yoo, Jung U., 16301 Shaker Blvd., Shaker Heights, OH, United States 44122
Solchaga, Luis A., 2260 Barrington Rd., University Heights, OH, United States 44118

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 6482231	B1	20021119
APPLICATION INFO.:	US 2000-602033		20000623 (9)

RELATED APPLN. INFO.: Continuation of Ser. No. US 1998-39200, filed on 13 Mar 1998, now abandoned Continuation-in-part of Ser. No. US 1998-41287, filed on 12 Mar 1998 Continuation-in-part of Ser. No. WO 1996-EP5093, filed on 19 Nov 1996

	NUMBER	DATE
PRIORITY INFORMATION:	IT 1995-PD225	19951120

DOCUMENT TYPE: Utility
FILE SEGMENT: GRANTED
PRIMARY EXAMINER: Isabella, David J.
LEGAL REPRESENTATIVE: Hedman & Costigan, P.C.
NUMBER OF CLAIMS: 16
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 39 Drawing Figure(s); 34 Drawing Page(s)
LINE COUNT: 1013
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A biological material for the repair of connective tissue cells comprising:

a) a cell preparation enriched in mesenchymal stem cells,

b) **three-dimensional** extracellular matrix comprising a nyaluronic acid derivative.

The use of said biological material, optionally combined with therapeutically acceptable excipients and/or diluents and optionally in association with therapeutically effective ingredients in the repair of connective tissue cells.

IT **111744-92-4**, Benzyl hyaluronate
(culture of bone marrow stem cells differentiated into connective tissue cells in **three-dimensional** biocompatible and biodegradable matrix of hyaluronic acid deriv.).

L126 ANSWER 52 OF 55 USPATFULL on STN
ACCESSION NUMBER: 2001:114671 USPATFULL
TITLE: THREADS CONTAINING HYALURONIC ACID ESTERS AND THEIR USE IN SURGERY
INVENTOR(S): CALLEGARO, LANFRANCO, THIENE, Italy
BELLINI, DAVIDE, MONTEGROTTO TERME, Italy

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2001008937	A1	20010719
APPLICATION INFO.:	US 1999-236958	A1	19990125 (9)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. WO 1997-EP4684, filed on 28 Aug 1997, UNKNOWN

	NUMBER	DATE
PRIORITY INFORMATION:	IT 1996-PD207	19960829

DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: JAMES V COSTIGAN, HEDMAN GIBSON & COSTIGAN, 1185 AVENUE OF THE AMERICAS, NEW YORK, NY, 100362601
NUMBER OF CLAIMS: 27
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 7 Drawing Page(s)
LINE COUNT: 654
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The application discloses esters of hyaluronic acid, wherein a first part of the carboxylic functions is esterified with an araliphatic alcohol and a second part is esterified with at least one long-chain, straight aliphatic alcohol with between 10 and 22 carbon atoms. The possible remaining non-esterified carboxylic functions, if present, are salified. The application further discloses biocompatible threads having a multifilament conformation comprising filaments formed by the aforesaid esters, and their use in the fields of medicine and surgery.

IT **203798-22-5P**, Hyaluronic acid benzyl lauryl ester
203874-06-0P, Hyaluronic acid benzyl palmityl ester
203874-07-1P, Hyaluronic acid benzyl stearyl ester
203874-08-2P, Hyaluronic acid benzyl arachidyl ester
203874-09-3P, Hyaluronic acid benzyl docosanyl ester
(manuf. and use in threads and biomaterials)

L126 ANSWER 53 OF 55 USPATFULL on STN
ACCESSION NUMBER: 2000:134623 USPATFULL
TITLE: Process for the coating of objects with hyaluronic acid, derivatives thereof, and semisynthetic **polymers**
INVENTOR(S): Morra, Marco, Asti, Italy
Cassinelli, Clara, Asti, Italy
Benedetti, Luca, Vicenza, Italy
Callegaro, Lanfranco, Vicenza, Italy
PATENT ASSIGNEE(S): Fidia Advanced Bioplymers, Srl, Brindisi, Italy (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 6129956		20001010	
	WO 9624392		19960815	
APPLICATION INFO.:	US 1997-930858		19971007	(8)
	WO 1996-EP509		19960207	
			19991007	PCT 371 date
			19991007	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	IT 1995-PD30	19950207
	IT 1995-PD243	19951220

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Cameron, Erma
LEGAL REPRESENTATIVE: Birch, Stewart, Kolasch & Birch, LLP
NUMBER OF CLAIMS: 22
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 14 Drawing Figure(s); 9 Drawing Page(s)
LINE COUNT: 1246
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Processes are provided for coating the surfaces of objects with hyaluronic acid, its derivatives or other natural or semisynthetic **polymers**, for applications in the fields of surgery, health care and diagnostics. The processes make it possible to bind such **polymers** in a stable manner to the surfaces of objects made of a wide range of materials. Surfaces treated according to the processes are characterized by a high degree of wettability, and are able to inhibit the adhesion of cells or bacteria present in the biological fluids.
IT **111744-92-4**, Benzyl hyaluronate
(coating of objects with hyaluronic acid, derivs., and semisynthetic **polymers**)

L126 ANSWER 54 OF 55 USPATFULL on STN
ACCESSION NUMBER: 1999:96274 USPATFULL
TITLE: Hyaluronan based biodegradable scaffolds for tissue repair
INVENTOR(S): Valentini, Robert F., Cranston, RI, United States
Kim, Hyun D., Providence, RI, United States
PATENT ASSIGNEE(S): Brown University, Providence, RI, United States (U.S. corporation)

	NUMBER	KIND	DATE

PATENT INFORMATION:	US 5939323	19990817	
APPLICATION INFO.:	US 1997-864709	19970528	(8)

	NUMBER	DATE
PRIORITY INFORMATION:	US 1996-18492P	19960528 (60)

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Witz, Jean C.
ASSISTANT EXAMINER: Hanley, Susan
LEGAL REPRESENTATIVE: Wolf, Greenfield & Sacks, P.C.
NUMBER OF CLAIMS: 8
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Figure(s); 1 Drawing Page(s)
LINE COUNT: 848
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A hyaluronic acid derivitized scaffold and method of forming are disclosed. The scaffolds are useful for various medical purposes such as tissue repair, tissue reconstruction and wound healing. In order to enhance these processes the scaffolds may be engineered to incorporate biologically active molecules such as BMP.

IT **111744-92-4**, Hyaluronic acid benzyl ester
(hyaluronan-based biodegradable scaffolds for tissue repair)

L126 ANSWER 55 OF 55 USPATFULL on STN
ACCESSION NUMBER: 97:73299 USPATFULL
TITLE: Multilayer **nonwoven** tissue containing a surface layer comprising at least one hyaluronic acid ester
INVENTOR(S): Dorigatti, Franco, Trento, Italy
Callegaro, Lanfranco, Padua, Italy
PATENT ASSIGNEE(S): Fidia Advanced Biopolymers S.r.l., Brindisi, Italy (non-U.S. corporation)

	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5658582		19970819	
	WO 9417837		19940818	
APPLICATION INFO.:	US 1995-505325		19951010	(8)
	WO 1994-EP397		19940211	
			19951010	PCT 371 date
			19951010	PCT 102(e) date

	NUMBER	DATE
PRIORITY INFORMATION:	IT 1993-PD24	19930212

DOCUMENT TYPE: Utility
FILE SEGMENT: Granted
PRIMARY EXAMINER: Page, Thurman K.
ASSISTANT EXAMINER: Shelborne, Kathryne E.
LEGAL REPRESENTATIVE: Birch, Stewart, Kolasch & Birch, LLP
NUMBER OF CLAIMS: 26
EXEMPLARY CLAIM: 1
LINE COUNT: 485
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Provided is a multilayered of **nonwoven** material comprising a surface layer which comes into contact with the skin, and one or more other layers which do not come into contact with the skin, wherein said surface layer which comes into contact with the skin is a member selected from the group consisting of a surface layer comprising at least one hyaluronic acid ester, a surface layer comprising a mixture of said at least one hyaluronic acid ester and at least one natural

polymer, semisynthetic **polymer**, or synthetic **polymer**, and a surface layer comprising a natural, synthetic, or semisynthetic biocompatible perforated membrane compatible with cell growth on its surface. This material can be employed in a wide variety of medical and sanitary applications, including surgery and as a non-adhesive covering material.

IT **111744-92-4**, Hyaluronic acid benzyl ester
(multilayer **nonwoven** tissue contg.)

FILE 'HOME' ENTERED AT 17:13:45 ON 02 FEB 2004